Integra Coal Operations Pty Ltd

ABN 96 118 030 998

Independent Audit

of the

Integra Mine Complex

03 December 2011 to 04 December 2014

Prepared by:

R.W. CORKERY & CO. PTY. LIMITED

March 2015

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Prepared for:

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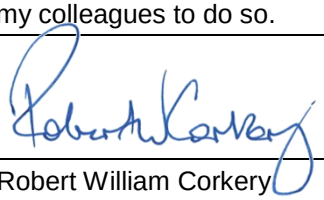
Ref No. 796/19

Report: March 2015

Certification Form

Independent Environmental Audit Submission Form	
Project	**Integra Mine Complex**
Consent No.:	Project Approval 08_0101 and 08_0102
Description of Project:	Underground and Open Cut Coal Mining and Processing
Project Address:	653 Bridgman Road SINGLETON NSW 2330
Proponent:	Integra Coal Operations Pty Ltd
Proponent Address:	653 Bridgman Road SINGLETON NSW 2330
Independent Audit	
Title of Audit:	Independent Audit of the Integra Mine Complex Period: 03 December 2011 to 04 December 2014
Certificate	
	I certify that I have managed the preparation of the attached independent audit and to the best of my knowledge: • it is in accordance with relevant approval condition(s); • I have acted professionally, accurately and in an unbiased manner in conducting the audit; • I am not related to any owner or operator of the project as a spouse, partner, parent, child, sibling, employer, employee, business partner, in sharing a common employer, or in a contractual arrangement outside the audit; • I do not have any pecuniary interest in the project, including where there is a reasonable likelihood or expectation of appreciable financial gain or loss to me or to a person to whom I am related; • neither I nor my employer have provided consultancy services for the project that were subject to this audit[1]; and • I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from fair payment) from any owner or operator of the project, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so.
Signature:	
Name:	Mr Robert William Corkery
Address:	1st Floor, 12 Dangar Road BROOKLYN NSW 2083
Email Address:	rob@rwcorkery.com
Auditor Certification (Body, No. Grade):	Exemplar Global Registration No. 5359 Lead Environmental Auditor
Date:	23 March 2015

[1] It is noted that some plans prepared by RW Corkery & Co in 2009 were relied upon in subsequent documents compiled by either ICO or other consultants.

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LIST OF COMMONLY USED ACRONYMS AND SYMBOLS

$	dollars
%	percent
μm	micron, one millionth of a metre (one thousandth of a millimetre)
mm/s	millimetres per second
AHD	Australian Height Datum
AEMR	Annual Review
AHMP	Aboriginal Heritage Management Plan
AQGGMP	air quality and greenhouse gas management plan
BMP	blast management plan
BOAs	biodiversity offset areas
CHPP	coal handling and preparation plan
dBL	the measurement of sound pressure level in which the amplitudes of the sound signal, though all frequencies of the signal, are treated equally, i.e. not weighted.
DPE	Department of Planning & Environment
DRE	Division of Resources & Energy
EMS	Environmental Management Strategy
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ESCP	Erosion and Sediment Control Plan
HVASs	high volume air samplers
ML	Mining Lease
NAHMP	Non-Aboriginal Heritage Management Plan
NMP	Noise Management Plan
NOW	NSW Office of Water
NSW P&I	NSW Planning & Infrastructure
PM_{10}	particulate matter <10μm in diameter
$PM_{2.5}$	particulate matter <2.5μm in diameter
RWC	R.W. Corkery & Co Pty Limited
SoC	Statement of Commitments
TEOM	tapered element oscillating microbalance
TSS	total suspended solids
WMP	Water Management Plan

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1. INTRODUCTION

1.1 SCOPE AND AUDIT OBJECTIVES

This environmental audit has been prepared for Integra Coal Operations Pty Ltd ("the Company") in accordance with *Schedule 5, Condition 8* of Project Approval 08_0101 and 08_0102 for the Integra Mine Complex which requires that:

"*By the end of December 2011, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the projects. This audit must:*

a) "be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;

b) include consultation with the relevant agencies;

c) assess the environmental performance of the projects and whether they are complying with the relevant requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);

d) review the adequacy of any approved strategies, plans or programs required under these approvals; and, if appropriate

e) *recommend measures or actions to improve the environmental performance of the projects, and/or any strategy, plan or program required under these approvals*."

The previous independent environmental audit for the Integra Mine Complex ("the Site") was undertaken on 01 and 02 December 2011. Therefore the current audit addresses the period between 03 December 2011 and 04 December 2014. The Integra Mine Complex has been on care and maintenance since operations ceased. The last mining took place on 15 August 2014 and the last coal was despatched on 22 September 2014. Therefore, the audit has considered both the operational documentation for the relevant period and documentation prepared for the care and maintenance phase.

The audit was confined to the land relating to the Integra Mine Complex and covered by Project Approval 08_0101 and 08_0102, see **Figure A**. The Integra Mine Complex comprises underground and open cut operations, a coal handling and preparation plan (CHPP) and rail load-out facility.

1.2 ENVIRONMENTAL AUDIT TEAM

The environmental audit team was comprised of the following members who have the necessary skills and qualifications required by DPE.

- Mr Rob Corkery – Lead Environmental Auditor

  Mr Rob Corkery, B.Sc(Hons), M.Appl.Sc, Certified Lead Environmental Auditor No. 5359, Principal of R.W. Corkery & Co Pty Limited (RWC). Mr Corkery has been a certified Lead Environmental Auditor for more than 15 years and has extensive and industry leading experience for assessing and auditing mining and mining-related projects.

- Mr Scott Hollamby – Environmental Auditor

  Mr Scott Hollamby, B.EnvSc(Hons), Senior Environmental Consultant with RWC. Mr Hollamby has 10 years auditing experience and has been a certified environmental auditor for 6 years.

- Mr Nathan Archer – Acoustic Specialist

  Mr Nathan Archer, B.Sc. (Hons), MAAS, AMIOA, Associate with SLR Consulting Australia Pty Ltd peer reviewed the relevant noise aspects of the Integra Mine Complex through a desktop review. Mr Archer has extensive experience in the assessment and modelling of noise and vibration impacts for the mining industry.

- Mr Scott Fishwick – Air Quality Specialist

  Mr Scott Fishwick, B.Sc, Manager at Environ Australia Pty Ltd peer reviewed the relevant air quality aspects of the Integra Mine Complex through a desktop review. Mr Fishwick has extensive experience in the assessment and modelling of air quality impacts for the mining industry and as an expert witness in the NSW Land & Environment Court.

- Ms Jane Murray – Biodiversity / Rehabilitation Specialist

  Ms Jane Murray, B.Appl.Sc, Principal Ecologist at Biosis Pty Ltd peer reviewed relevant biodiversity / rehabilitation aspects of the Integra Mine Complex through a desktop review. Ms Murray is an experienced ecologist and has completed numerous rehabilitation audits.

- Mr Alex Irwin – Surface Water Specialist

  Mr Alex Irwin, B.Sc (Hons), Senior Environmental Consultant with R.W. Corkery & Pty Limited reviewed the relevant erosion and sediment control and water management aspects of the Integra Mine Complex. Mr Irwin completed the Centre for Environmental Training Erosion and Sediment Control course in 2009 and has extensive industry experience in both the review and preparation of erosion and sediment control and water assessments and management plans.

The audit team was approved by the DPE on 21 November 2014 (see **Appendix 1**).

1.3 REPORT FORMAT

The environmental audit is set out in four sections with a set of appendices.

Section 1: Introduces the scope and objectives of the audit and the environmental audit team, outlines the document's format and defines the limitations of the audit and audit report.

Section 2: Records the approach to the conduct of the audit and how it was carried out.

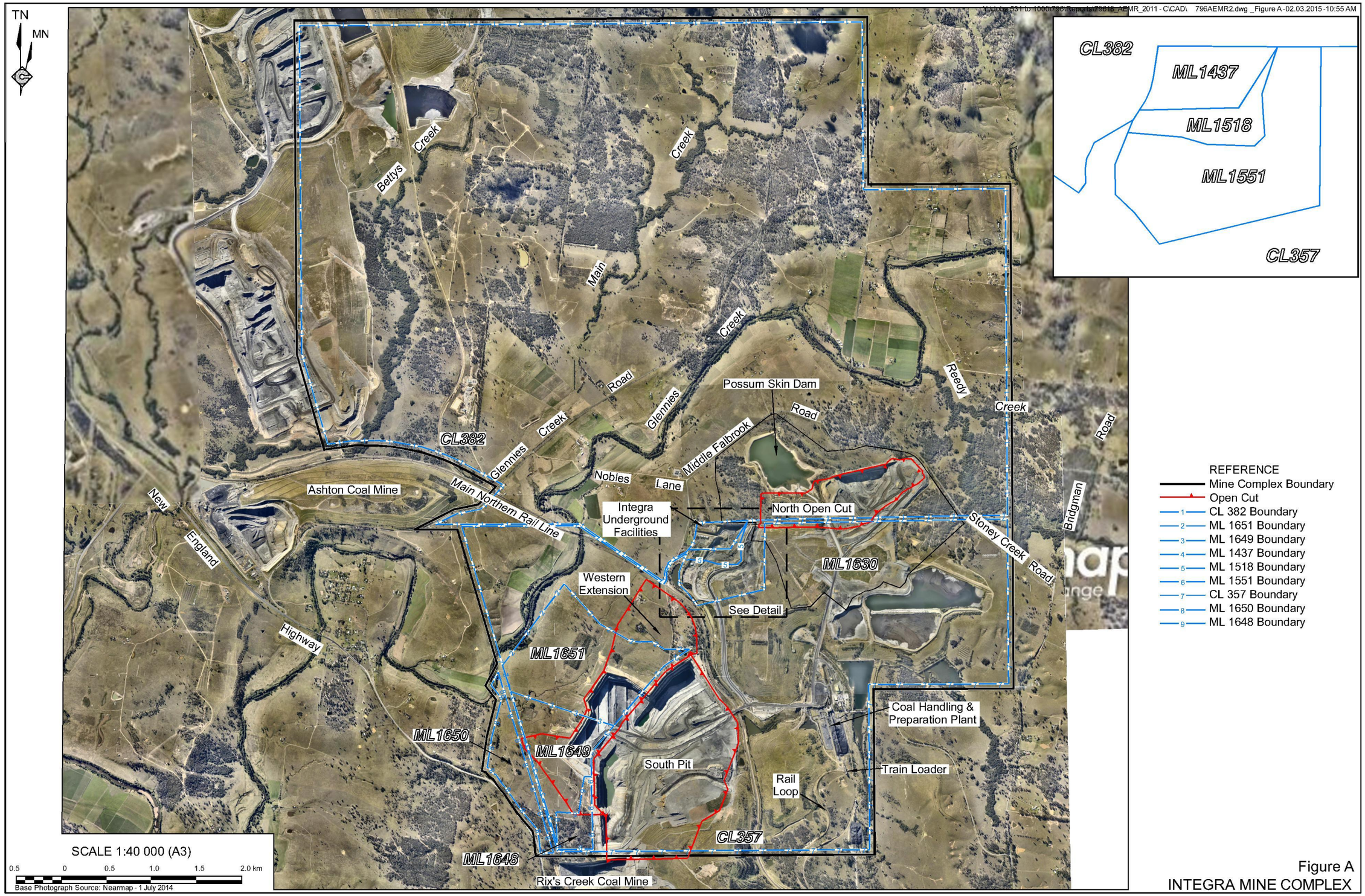

Figure A
INTEGRA MINE COMPLEX

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Section 3: Presents the results of the audit, particularly addressing:

- the overall environmental performance at the Integra Mine Complex;
- a summary of compliance with Project Approval 08_0101 and 08_0102, Environment Protection Licence 3390 and applicable mining tenements; and
- the adequacy of the approved strategies, plans and programs required by the site's approvals.

Section 4: Provides a set of recommendations for consideration by the Company arising from the audit results recorded in **Appendices 3** to **5** and discussed in Section 3.

Appendix 1: Provides a copy of the DPE's approval of the audit team and copies of correspondence with government agencies regarding issues to be addressed during the audit.

Appendix 2: Records the publicly available web-based documentation and the principal documentation reviewed during the course of the independent audit.

Appendices 3 to 5: Presents detailed tables identifying the status of compliance with individual conditions within Project Approval 08_0101 and 08_0102, Environment Protection Licence 3390 and applicable mining tenements.

Appendices 6 to 9: Presents copies of the peer review letter reports for Air Quality, Noise, Biodiversity / Rehabilitation and Surface Water.

1.4 LIMITATIONS

The findings in this report are based on a site inspection on 04 and 05 December 2014, discussions with Company personnel and documentation provided prior to, during and following the inspection.

Not all documentation required to assess compliance with all conditional requirements could be supplied. Hence, the assessment of compliance relying upon documentation has been limited to that for which documentation was available. R.W. Corkery & Co. Pty Limited has made every endeavour to identify compliance based upon the documentation supplied assuming it to be authentic and that all copies of original documents are a true and accurate copy.

The site inspection was undertaken as a "walk-over" with observations made of the various features of the mine complex. The main components were observed to enable an appreciation of activities undertaken on site and the Company's compliance with the various conditional requirements. Not all areas of the mine complex were inspected nor were any subsurface investigations carried out or any samples collected for analysis during or following the inspections. On this basis, it cannot be discounted that issues could exist within areas of the site not inspected.

2. AUDIT PLAN AND PROGRAM

2.1 INTRODUCTION

The audit was undertaken generally in accordance with the guidelines for auditing incorporated within International Standard ISO 19011 and with consideration of the *Draft Guidelines Independent Environmental Audits of Mining Projects* (NSW Planning & Infrastructure, 2014). Whilst ISO 19011 focuses on quality and environmental management systems, the basic principles apply to the environmental audit required by Project Approval 08_0101 and 08_0102. The main principles within ISO 19011 that have been adopted for the independent audit of the Integra Mine Complex involved the following.

- Development of an Audit Plan (including reviewing documentation prior to the audit inspection).
- Preparing an Audit Program.
- Conducting on-site audit activities including opening and closing meetings.
- Report preparation.

2.2 AUDIT PLAN

The audit plan was compiled to outline all the activities necessary for planning, organising and conducting the audit. For the Integra Mine Complex, the audit plan involved the following.

Planning: RWC initially compiled a list and downloaded a copy of all relevant publicly available documentation (see **Appendix 2 – Part 1**). Discussions were then held with the Company's Environment and Community Advisor and Manager Mining Engineering regarding the currency of documentation and additional documentation required to demonstrate compliance.

It was requested by RWC that, where possible, an electronic copy of requested documentation be provided for review prior to the audit inspection. Where electronic copies were not available, it was requested that these documents be made available during the audit inspection. In a number of cases, documents were supplied following the audit inspection.

During the planning phase, relevant government agencies were consulted to confirm any specific issues that they believe the audit should address.

Document Review: Prior to the audit inspection, relevant documentation obtained electronically (see **Appendix 2**) was reviewed and a set of compliance tables compiled. Copies of the completed compliance tables are provided as **Appendices 3, 4** and **5** of this document.

Audit Inspection: The audit inspection was planned to involve an opening meeting at the Company's site office with the Company's Environment and Community Advisor and Manager Mining Engineering.

It was planned to then undertake an inspection of the Integra Mine Complex by a combination of vehicle and foot over a 2 day period to provide the greatest coverage of the site whilst focusing on key areas required to assess compliance and environmental management.

Following the site inspection, it was planned that the remainder of the audit be spent reviewing documentation and clarifying compliance matters. A closing meeting was also to be held at the end of the second day.

Report Preparation: It was proposed that a draft of the completed compliance tables, captioned photographs and overview of environmental management would be supplied to the Company to review for factual correctness before being incorporated into the final audit report.

It was proposed that the audit report would be finalised following the receipt of the Company's review of the draft completed compliance tables.

2.3 AUDIT EVIDENCE

For the purposes of conducting the audit, *Schedule 5, Condition 8* of Project Approval 08_0101 and 08_0102 and the *Draft Guidelines Independent Environmental Audits of Mining Projects* (NSW P&I, 2014) requires that this document assess:

1. issues raised by the relevant agencies;
2. the environmental performance of the project;
3. the Company's status of compliance with the relevant requirements in Project Approval 08_0101 and 08_0102, EPL 3390 and the relevant mining tenements; and
4. the adequacy of any approved strategies, plans or programs required under these approvals.

The following audit evidence was used to undertake these assessments.

1. Environmental Performance

   This was assessed through a combination of:

   a) the audit inspection;

   b) a review of all relevant environmental monitoring results; and

   c) a review of other relevant documents including:

   - Annual Reviews;
   - Community Consultative Committee Meeting Records; and
   - Complaints Register.

   The results of this assessment are outlined in Section 3.3. Where appropriate, recommendations to improve environmental performance were identified (see Section 4).

2. Status of Compliance

   Statutory compliance was assessed by methodically reviewing each condition and, based either upon site observations, documentation supplied (or not supplied) and/or advice provided by Company representatives, determining whether compliance has been achieved during the audit period.

   All conditions and commitments of the Project Approval, EPL and mining tenements were tabulated and columns provided for compliance assessment and comments (see **Appendices 3, 4** and **5**). Where appropriate, recommendations arising from the assessment of compliance are included with the recommendations presented in Section 4.

3. Adequacy of Approved Strategies, Plans and Programs

   All currently approved strategies, plans and programs were reviewed and assessed for adequacy in light of the conditional requirement, site inspection and document review. Where appropriate, recommendations arising from the review of these documents are included with the recommendations presented in Section 4.

4. Issues Raised by the Relevant Agencies

   The issues raised by government agencies was tabulated and considered through the assessment of environmental performance, compliance and approved strategies, plans and programs (1 to 3 above). Cross references to where the raised issues have been addressed are provided within the tabulated summary (see **Table 3.1**).

For aspects relating to noise, air quality, biodiversity / rehabilitation and surface water, additional specialist peer review was undertaken through a desktop assessment of the audit evidence assembled. The results of these peer reviews are summarised in Section 3 and provided in full in **Appendices 6** to **9**.

2.4 AUDIT PROGRAM

The audit program was developed from the audit plan and in consultation with the Company to provide:

1. for the identification and review of documentation prior the audit inspection;
2. adequate time to inspect all key areas of the Integra Mine Complex; and
3. for the preparation of the audit report within a reasonable timeframe.

The audit program was completed as follows.

- 24 & 25 November 2014.
  - Preparation of the detailed audit plan and proforma audit document.
  - Preparation of publicly available document list for review by the Company.

- 26 November to 02 December 2014.
  - Provision of updated documentation / additional documentation by the Company.
  - Review of all relevant available documentation.
  - Consultation with relevant government agencies.
  - Complete draft of components of the compliance review and audit report relevant to the available documentation.
- 03 December 2014.
  - Teleconference with the Company to discuss interim results following documentation review and outcomes of government consultation.
  - Prepare and provide to the Company a summary of additional documentation requirements and any other matters requiring follow up.
- 04 and 05 December 2014.
  - Undertake inspection of Integra Mine Complex and on-site compliance review.
- 15 December 2014 to 27 February 2015.
  - Request and review additional documentation and complete draft audit report.
- 25 February 2014 to 9 March 2015.
  - Peer review of relevant sections of documents and the audit report.
- 02 March 2015 to 16 March 2015.
  - Review of draft audit report by the Company for matters of fact.
- 17 March 2015 to 20 March 2015.
  - Lead Auditor review and finalisation of audit report incorporating any final information provided by the Company.
- 23 March 2015.
  - Distribution of final audit report.

3. AUDIT OUTCOMES

3.1 INTRODUCTION

The following subsections provide a summary of the audit results and outcomes including:

- a review of issues raised during agency consultation (Section 3.2);
- environmental performance for key environmental aspects (Section 3.3);
- a summary of the compliance review for the project approval, environment protection licenced and mining tenements (Section 3.4);
- a summary of community complaints (Section 3.5); and
- the outcomes from a review of approved strategies, plans and programs (Section 3.6).

3.2 ISSUES RAISED DURING AGENCY CONSULTATION

Table 3.1 provides a list of the government agencies that were consulted and requested to identify any issues they considered should be addressed during the audit. Each of the issues raised by the agencies are summarised with a cross reference to where they are addressed in this audit report.

Table 3.1
Government Agency Consultation

Page 1 of 2

Agency	Issues Raised and Location Addressed
Department of Planning & Environment (Discussed 27 November 2014) (Received 01 December 2014)	• Confirmation that all required biodiversity offsets are in place / offset requirements have been met – *see Section 3.6.6.* • Confirmation of proper provision for management of surface water during the care and maintenance phase (due to increased risk caused by the design of the existing clean and dirty water management systems) – *see Section 3.6.5.* • The effectiveness of the air quality management measures / implementation of air quality management plan during the operational phase of the audit period – *see Sections 3.3.3 and 3.6.4.*
NSW Trade & Investment (Discussed 27 November 2014)	• No specific issues were raised. • Advised currently resolving care and maintenance Mining Operations Plan. Rehabilitation is a key issue being considered in this process.
Environment Protection Authority (Discussed 27 November 2014)	• No specific issues were raised.
Office of Environment & Heritage (Received 03 December 2014)	• No specific issues were raised.

Table 3.1 (Cont'd)
Government Agency Consultation

Agency	Issues Raised and Location Addressed
NSW Office of Water (Received 03 December 2014)	• Does the mine hold sufficient water licences to account for all water taken, through both active and passive take (i.e. passive inflows into mine voids), from surface and groundwater sources? This includes any induced flows from connected water sources (i.e. extraction of groundwater from a mine void resulting in a loss of base-flow to a connected surface water source) – *see Section 3.3.4, Appendix 3 Schedule 3 Condition 32.* • Does the mine have adequate systems in place to accurately measure/determine this water take in order to report against the licensed entitlement? – *see Section 3.3.4 and* ***Recommendations IMC22/14*** *and* ***IMC29/14****.*
Singleton Shire Council	• No response received.

Copies of correspondence with these agencies are provided in **Appendix 1**.

3.3 ENVIRONMENTAL PERFORMANCE OF THE DEVELOPMENT

3.3.1 Overview

Invariably, environmental performance can be assessed based on a review of:

- results of environmental monitoring (see Sections 3.3.2 (Noise and Vibration), 3.3.3 (Air Quality), 3.3.4 (Groundwater), 3.3.5 (Surface Water);
- compliance with relevant approvals and licences (see Section 3.4); and
- community complaints (see Section 3.5).

The following subsections provide a review of environmental performance of key environmental issues.

3.3.2 Noise and Vibration

In 2013, two additional real-time noise monitors (BarnOwl) were installed to supplement the two existing real-time noise monitors. These real-time monitors are used to guide both preventative and corrective management of noise emissions. Quarterly attended monitoring was also undertaken throughout the audit period to assess compliance.

During the audit period, no non-compliances were recorded during noise monitoring with the limits set in EPL 3390 and criteria specified in Project Approval 08_0101 and 08_0102. It is acknowledged that monitoring did record results exceeding the specified limits / criteria[2], however, these were recorded during meteorological conditions under which the limits / criteria do not apply. As identified in SLR's peer review (see **Appendix 7**), in such instances a review

[2] Note: Noise limits are nominated in EPL 3390 and noise criteria are nominated in Project Approval 08_0101 and 08_0102.

and statement of compliance under applicable conditions should be provided, such as through repeat monitoring or use of a validated noise model (**Recommendation IMC08/14**). Additionally, whilst records of operational changes during adverse conditions are retained, where exceedances are recorded during non applicable meteorological conditions, a summary of the actions taken at that time should be reported (**Recommendation IMC09/14**).

The SLR peer review also recommends further analysis of real-time monitoring for assessment of cumulative noise impacts and general trends (**Recommendations IMC10/14** and **IMC11/14**).

Blast monitoring recorded exceedances of the overpressure limit (115dBL) on more than 5% of blasts during the 2011/2012 and 2012/2013 EPL reporting periods. Exceedances of the `maximum blast overpressure limit (120dBL) were also recorded on four occasions and the vibration limit (10mm/s) on one occasion. Incident reports were prepared for all exceedances. An agreement has also been reached on 06 January 2014 with the owner of the property where the majority of exceedances were recorded.

During the audit period, the total number of noise and blasting complaints respectively accounted for 66.6% and 16.0% of all complaints received indicating that these issues are an area of primary community concern. Noise complaints principally related to mobile equipment, however, between March and November 2013 evaporative fans were installed in an exposed location resulting in 82 complaints (70 from one receiver).

The (then) NSW P&I 2012 Annual Review meeting on 11 July 2013 also raised issues with the noise attenuation methods for the evaporative fans and requested a noise attenuation plan be submitted by 20 August 2013. The plan was prepared by Global Acoustics on 19 December 2013. The evaporative fans were also relocated from TD2 to the lower bench in the Western Extension in December 2013.

Whilst investigations indicated that the received noise from the fans was within applicable limits, the fans were relocated to a shielded location. No further complaints regarding the evaporative fans were received following their relocation.

3.3.3 Air Quality

During the audit period, no non-compliances were recorded with applicable air quality criteria nominated in Project Approval 08_0101 and 08_0102. Despite this, a range of studies (see Section 3.5.4) and ongoing improvements to air quality management were undertaken. Improvements included expansion of the real-time monitoring network with four laser photometers (PM_{10}), one TEOM (in addition to two existing units) and two real-time dust monitoring cameras. The Company now operates an extensive real-time air quality monitoring network with meteorological forecasting capability to proactively manage emissions together with 17 static deposited dust gauges and five high volume air samplers (HVASs).

During the audit period, the total number of air quality complaints accounted for 14.7% of all complaints received, ranking the third behind noise and blasting. Where identified by the complainant, complaints generally related to either dust from blasting or earthmoving activities. Frequently this was during adverse weather conditions when the Company responded through additional use of water carts or modification of earthmoving activities.

3.3.4 Groundwater

During the audit period, groundwater monitoring was undertaken in accordance with the Water Management Plan (see Section 3.5.5) with no groundwater levels triggers being exceeded and no reportable events occurring. Monitoring also indicated that the alluvial aquifers showed no response to mining activities[3].

During the audit period, the measurement / calculation of groundwater inflows were not reported and results were not available during the audit. Whilst the 2014 Water Management Plan (see Section 3.5.5) includes a statement that the inflows are to be calculated and a cross reference to a procedure, it does not appear that these have been implemented. It is noted that the Annual Reviews covering the audit period state that, due to the water stored within the South Pit, groundwater inflows cannot be accurately determined. However, in order to determine the inflows and to demonstrate compliance with the Project Approval and confirm that adequate water entitlements are held for the 'water take', the volume of groundwater inflows must be estimated in the most practical manner possible (**Recommendation IMC22/14**).

3.3.5 Erosion & Sediment Control and Surface Water

During the audit period, no surface water incidents were reported, no water-related complaints were received and no off-site discharges occurred. Surface water monitoring was undertaken in accordance with the Water Management Plan (see Section 3.5.5) which indicated that mining has had 'minimal influence' upon the pH, electrical conductivity and total suspended solids (TSS)[4].

A number of surface water-related issues were raised by the Division of Resources and Energy (DRE) and the (then) Department of Planning & Infrastructure as part of the Annual Review (AEMR) site inspections. These include the following.

- Survey pegs in sediment (Southern) dams were not evident during the July 2013 inspection. These pegs were inspected during the audit inspection on 04 December 2014 and confirmed to be in place.
- In 2012, there was a large volume of free standing water in the tailings dams. A critical review of the Tailings Dam operations was requested by DRE. Since that time, sprays were installed in TD1 and TD2 which was subsequently commended by DRE.
- In 2012, at the ventilation shaft site, drilling mud appeared to have breached the sumps and drill cuttings were stockpiled on top of the bund neutralising the sediment control measure. The drilling mud was subsequently removed and the area rehabilitated. No ongoing issues were observed during the audit inspection on 04 December 2014.

[3] Annual Reviews 2010-11, 2012 and 2013 (Sections 3.5.2).
[4] Annual Reviews 2010-11, 2012 and 2013 (Sections 3.4.2).

During the audit inspection, the following additional matters were also observed.

- Sediment control fencing generally appeared to be maintained in good condition and soil stockpiles were well vegetated thereby reducing the potential for sediment-laden runoff. Some redundant sediment fencing was also observed in areas which have now been stabilised. This fencing should either be maintained or removed (**Recommendation IMC28/14**).
- Erosion and scouring was observed at a number of locations within the dirty water catchment system for the South Pit including across the access road to Dam B5 and the inlets to Dams B2 and B6 (see **Plates 1** and **2**). Whilst it was not considered likely that these would lead to an incident in the short term, they should be repaired and the geotextile fabric and rock armouring re-instated (**Recommendation IMC26/14**).
- The water levels within the sediment dams were maintained at a low water level and free of sediment build up providing optimal storage capacity during rain events. However, sediment cleaned from the dams was observed to have been placed on the inside edge of the dam wall (**Plate 3**) and likely to contribute to re-silting (**Recommendation IMC28/14**).
- A range of additional opportunities for improvements to the clean and dirty water systems were observed including the following.
  - The dirty water inlet to Dam D1 requires de-silting (**Recommendation IMC28/14**).
  - The separation wall and road between the clean and dirty water drains on the western side of Dam D1 should be cambered towards the dirty water drain, not the clean water drain (**Recommendation IMC27/14**).
  - The dirty water drain at "the cattle yards" is upslope of the clean water drain (see **Plate 4**). Should flows exceed the drain design dirty water could mix into the clean water drain. Measures to reduce the risk of such an occurrence should be investigated (**Recommendation IMC27/14**).

3.3.6 Biodiversity

ICO has succeeded in setting aside a total of six biodiversity offset areas (BOAs), one more than originally intended in the Project Approval, and increasing the total area covered by the BOAs by approximately 74%. The bank guarantee for $534 000 for the BOAs was finalised on 8 August 2013 through the ANZ bank.

The Company commissioned an audit of the BOAs in 2012, with the resultant report identifying that "the environmental management actions taken between 2007 and 2012 are generally considered to have resulted in improvements in the vegetation condition". Notwithstanding this observation, the audit report recognised that the existing baseline data regarding flora and fauna was limited to generic lists across the entire IMC. A review of the BOA-related documentation throughout this audit also confirmed that the relevant documentation (including the Biodiversity Management Plan) is generic and not sufficiently specific to guide the management of the BOAs.

Plate 1 Erosion Scour from Road to Dam B5

(Ref: E796B_047)

Plate 2 Erosion and Scour at Inlet to Dam B2

(Ref: E796B_074)

Plate 3 Sediment Placed on the Inside Wall of Dam B2

(Ref: E796B_066)

Plate 4 Dirty Water Drain Upslope of Clean Water Drain at "the cattle yards"

(Ref: E796B_272)

In terms of biodiversity, the Company is progressing its rehabilitation program within the areas disturbed by mining, however, greater emphasis needs to be placed on planning and evaluating success in the biodiversity across the rehabilitation areas.

3.3.7 Heritage

Due diligence archaeological surveys were undertaken during the audit period for surface disturbing activities. No known Aboriginal or European heritage sites were disturbed / impacted or destroyed[5].

No keeping place was established during the audit period and no documentation regarding a keeping place has been compiled during the audit period.

3.3.8 Hydrocarbons and Hazardous Substances

A number of hydrocarbon-related issues were raised by the Division of Resources and Energy (DRE) and the (then) Department of Planning & Infrastructure as part of the Annual Review (AEMR) site inspections. As a result of the June 2014 inspection, the following issues and actions were raised.

- The bioremediation area was poorly managed (no signage or formal drainage collection point). A hydrocarbon contamination and bioremediation management strategy was required to be prepared by 31 October 2014. The document was completed by the nominated date and incorporates relevant text for land farming activities on site.
- The underground operation requires a register of equipment laydown areas, including chemicals, oil and lubricants. A register of hazardous substances (undated) was sighted (Schedule 11).
- Future Annual Reviews are to include a table describing hydrocarbon spills and actions that were taken for hydrocarbon spills categorised above a certain risk level and volume (as agreed with DPE). The next Annual Review is due beyond the audit period.

During the audit inspection, the following hydrocarbon management matters were identified.

- Improved hydrocarbon storage, handling and spill response is required, principally within the underground surface infrastructure areas (**Recommendation IMC53/14**).
- It was advised by the Environment and Community Advisor that the bioremediation area at the South Pit is no longer in use, although no signage is in place to advise that no further material is to be placed in this location. No monitoring was known to have been completed to confirm that the material has been fully remediated. Opportunity exists to test this area and, if appropriately remediated, the material could be utilised in nearby rehabilitation activities and the bioremediation area fully decommissioned (**Recommendation IMC45/14**).

[5] Annual Reviews 2010-11, 2012 and 2013 (Sections 3.13 & 3.14 [2010-11] and 3.14 and 3.15 [2012 & 2013]).

- A range of opportunities for improvement at the current RL 75 Bioremediation Area were identified including:
  - improved separation of material in different stages of treatment;
  - provision of advisory signage; and
  - recording and reporting of volumes of material placed and date of placement.

3.3.9 Rehabilitation

A review of rehabilitation-related documentation and the audit inspection established that the rehabilitation status for the IMC is currently acceptable in that the bulk of the final landform that can be re-shaped, topsoiled and vegetated has been completed. The status of the revegetation varies from areas recently stabilised with pasture grasses to areas that have been vegetated with tree and shrub species over the past 17 years.

The documentation supplied does not contain sufficient records for future site personnel to gain an appreciation of when all areas were rehabilitated on site, the methods used and the failures/successes that can be relied upon when planning future rehabilitation activities. It would be desirable that this information is compiled on plans and supported by reference documentation.

Greater emphasis needs to be placed in future monitoring of rehabilitation that the biodiversity values of the final landform are meeting the objectives set out in the Biodiversity Management Plan and Rehabilitation Management Plan, particularly with respect to connectivity.

The review of the 2012 / 2013 AEMR by DRE raised the following issues – each of which have been responded to as follows based upon feedback from the Environment and Community Advisor or a review of supplied documentation.

- AEMR S5 (Rehabilitation) did not adequately address the AEMR guidelines. A revised AEMR was due 29 August 2014: The modified 2013 Annual Review was submitted on 29 August 2014.
- Weed management, in particular Galenia, was an issue on soil stockpiles and over the mine site: This issue was addressed in Section 3.9.2 of the modified Annual Review.
- Review and justify the species selected for the Tree Seed Mix (it was noted that *Cassininia aculata* can be a dominant species). Also – not to use Rhodes Grass: The Company is currently reviewing its tree seed mix and has committed not to use Rhodes Grass.
- DRE encourages ICO to consider accelerating the rehabilitation schedule of the overburden dump adjacent to Stoney Creek Road, and the use of aerial seeding for exposed areas: The rehabilitation of the overburden dump is scheduled to occur in 2016 (Source: 2014 – 2017 Maintenance MOP).

- The underground operations require a register of bores, detailing rehabilitation status: Sighted bores on Map 3 of Underground MOP dated 07 June 2014 and undated register identifying 13 gas wells were still to be rehabilitated.
- Deep vehicle tracks were observed in recently revegetated areas – need to maintain windrows and signage to minimise access: The Company has blocked a number of small tracks on site that have previously been in use and will be more vigilant re track use across/around vegetated areas.

3.4 COMPLIANCE ASSESSMENT

The results of the compliance assessment have been tabulated to present a summary of each conditional requirement, an assessment of compliance, and a commentary relating to each condition. The tabulated assessments have been completed as follows.

- Project Approval 08_0101 and 08_0102 (**Appendix 3**).
- Environment Protection Licence 3390 (**Appendix 4**).
- Relevant mining tenements (**Appendix 5**).

A summary of the relevant details of these approvals is provided in **Table 3.2**.

Table 3.2
Current Approvals, Consents, Mining Tenements and Licences

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Approval/Lease/Licence	Issue Date	Expiry Date	Details / Comments
Development Approvals			
Project Approval 08_0101 and 08_0102	26 November 2010	31 December 2022 (Open Cut) 31 December 2035 (Underground)	Granted by the (then) Minister for Infrastructure and Planning for the Integra Mine Complex (including open cut and underground operations). Includes Modifications 1, 2 & 3 – last modified 01 February 2013.
Development Consent 719/2003	13 February 2004	Nil	Granted by Singleton Shire Council for the Glennies Creek to Ashton Water Pipeline.
Mining Tenements*			
CL 357	27 March 1990	27 March 2032	Granted by NSW T&I incorporating 1583ha with surface restriction part 20m and depth restrictions to 900m below AHD. Purpose – Open Cutting. Joint Security (CL 357 1973) held - $20,836,000.
ML 1648	04 January 2011	04 January 2032	Granted by NSW T&I incorporating 22.17ha with no surface restrictions and depth restrictions to 20m. Purpose – Open Cutting. Joint Security (CL 357 1973) held - $20,836,000.
ML 1649	04 January 2011	04 January 2032	Granted by NSW T&I incorporating 87.39ha with no surface restrictions and depth restrictions to 900m below AHD. Purpose – Open Cutting. Joint Security (CL 357 1973) held - $20,836,000.

Table 3.2 (Cont'd)
Current Approvals, Consents, Mining Tenements and Licences

Approval/Lease/Licence	Issue Date	Expiry Date	Details / Comments
Mining Tenements* (Cont'd)			
ML 1650	04 January 2011	04 January 2032	Granted by NSW T&I incorporating 50.65ha with no surface restrictions and depth restrictions to 900m below AHD. Purpose – Open Cutting. Joint Security (CL 357 1973) held - $20,836,000.
ML 1651	04 January 2011	04 January 2032	Granted by NSW T&I incorporating 158.7ha with no surface restrictions and depth restrictions to 20m. Purpose – Open Cutting. Joint Security (CL 357 1973) held - $20,836,000.
CL 382	12 November 1991	11 November 2033	Granted by NSW T&I incorporating 3933ha with multiple surface restrictions and depth restrictions to 900m below AHD. Purpose – Underground Methods. Joint Security (CL 382 1973) held - $11,690,000.
ML 1437	28 April 1999	27 March 2032	Granted by NSW T&I incorporating 14.8ha with no surface restrictions and depth restrictions to 900m below AHD. Purpose – Underground Methods. Joint Security (CL 382 1973) held - $11,690,000.
ML 1518	14 June 2004	27 March 2032	Granted by NSW T&I incorporating 9.587ha with no surface restrictions and depth restrictions to 900m below AHD. Purpose – Open Cutting. Joint Security (CL 382 1973) held - $11,690,000.
ML 1525	18 November 2002	17 November 2023	Granted by NSW T&I incorporating 3.992ha with surface restriction to 5m and depth restrictions to 20m. Purpose – Cable, Generation and Transmission of Electricity, Signalling System, Telephone Line, Ventilation Shaft. Joint Security (CL 382 1973) held - $11,690,000.
ML 1551	10 January 2006	27 March 2032	Granted by NSW T&I incorporating 43.1ha with no surface restrictions and depth restrictions to 900m below AHD. Purpose – Nil Methods Excluded. Joint Security (CL 382 1973) held - $11,690,000.
ML 1630	16 March 2009	16 March 2030	Granted by NSW T&I incorporating 18.13ha with no surface restrictions and depth restrictions to 20m. Purpose – Open Cutting. Joint Security (CL 382 1973) held - $11,690,000.
ML 1676	05 June 2013	04 January 2026	Granted by NSW T&I incorporating 9.69ha with no surface restrictions and depth restrictions to 5m. Purpose – All Purposes. Joint Security (CL 382 1973) held - $11,690,000.
Environment Protection Licence			
Environment Protection Licence No. 3390		Not Applicable	Issued by the NSW Environment Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997*.

* See **Figure A**

The assessment of compliance has been recorded generally in accordance with the *Draft Guidelines Independent Environmental Audits of Mining Projects* (NSW P&I, 2014). Compliance has been recorded as follows.

Compliant	The intent and all specific requirements of the condition have been met.
Non-compliant	The intent or one or more specific requirements of the condition have not been met.
Administrative Non-compliance	A technical conformance with a condition of the consent that would not result in material harm to the environment.
Not Applicable / Not Yet Applicable	A condition or requirement has an activation or timing requirement that had not been sufficiently triggered at the time of the review.
No Longer Applicable	A condition or requirement that is no longer applicable to ongoing operations.
Not Determined	Insufficient information was available upon which to assess compliance.

It is recognised that a number of the conditions in Project Approval 08_0101 and 08_0102 have a number of sub-clauses referred to as a), b), c), etc. The audit results presented in **Appendix 3** provide an assessment of compliance for each of the individual sub-clauses. Where any of the sub-clauses specify other requirements or detail, the audit has identified whether the requirements or detail has been provided/achieved – expressed as either (Yes) or (No). In the event any requirements or detail are assessed to be not being compliant or having been achieved, and therefore assigned a (No), the entire sub-clause is assessed as **Non-compliant**.

The status of compliance against Project Approval 08_0101 and 08_0102 was assessed as follows.

Compliant	-	264
Non-Compliant	-	25
Administrative Non-compliance	-	2
Not Applicable	-	25
Not Yet Applicable	-	54
No Longer Applicable	-	1
Not Determined	-	11
Total		**382**

Details of the non-compliance against Project Approval 08_0101 and 08_0102 related principally to the following.

- Poor hydrocarbon storage and management within the underground area (3 non-compliances).
- Failure to implement all requested actions arising from DPE's review of reports, plans and programs within the requested timeframe (1 non-compliance).
- Improper attenuation of equipment (evaporative fans) (1 non-compliance).

- Failure to formally implement coordinated noise, blast and air quality management protocols with surrounding mine operators (5 non-compliances).
- Exceedances of blasting criteria (1 non-compliance).
- Failure to submit within the required timeframes or to include all required information / detail within mandatory management plans (7 non-compliances).
- Failure to record / report the date and time of train movements prior to January 2013 (1 non-compliance).
- Failure to complete a formal compliance review as part of the Annual Reviews (1 non-compliance).
- Failure of the 2011 Independent Environmental Audit to assess compliance against EPL 3390 and relevant mining tenements (1 non-compliance).
- Failure to submit written notification / report within the required timeframe (2 administrative non-compliance).
- Failure to make a reports / data available on the Company's website within the required timeframe or keep up to date (2 non-compliances).
- Failure to comply with all conditional requirements in all approvals, leases and licences (1 non-compliance).
- Failure to record groundwater inflows (1 non-compliance).

The status of compliance against Environment Protection Licence 3390 was assessed as follows.

Compliant	-	49
Non-Compliant	-	5
Administrative Non-compliance	-	3
Not Applicable	-	4
Not Yet Applicable	-	3
No Longer Applicable	-	1
Not Determined	-	3
Total		**68**

Details of the non-compliances against Environment Protection Licence 3390 related principally to the following.

- Exceedances of blasting criteria (3 non-compliances).
- Poor hydrocarbon storage and management within the underground area (2 non-compliances).
- Failure to submit written notification / requested information within the required timeframe (2 administrative non-compliances).
- Failure to make a report available on the Company's website within the required timeframe (1 administrative non-compliance).

The status of compliance against the mining tenements was assessed as follows.

Compliant	-	78
Non-Compliant	-	7
Administrative Non-compliance	-	0
Not Applicable	-	49
Not Yet Applicable	-	7
No Longer Applicable	-	0
Not Determined	-	8
Not Assessed*	-	2
Total		**151**

* relating to safety matters beyond scope and qualifications of environmental auditor.

Details of the non-compliance against the mining tenements related principally to the following.

- Poor hydrocarbon storage and management within the underground area (1 non-compliance).
- Exceedances of blasting criteria (6 non-compliances).

Whilst not identified as a non-compliance, following the site inspection it was identified that the eastern extent of Tailings Dam 2 (TD2) appears to cross the Project Approval boundary as shown in the figures attached to Project Approval 08_0101 and 08_0102. Despite the fact that the Project Approval was issued on the basis of these figures and that TD2 remains wholly within the cadastral boundaries listed in the Project Approval and wholly within the mining tenements, it is recommended that this possible compliance matter be further investigated (**Recommendation IMC61/14**).

3.5 COMMUNITY COMPLAINTS

A summary of all complaints received during the audit period for the principal environmental aspects is provided in **Table 3.3**.

Table 3.3
Summary of Community Complaints

	2011[1]	**2012**	**2013**	**2014[2]**	**Total**
Noise	1 (11.1%)	125 (61.3%)	118 (80.3%)	5 (35.7%)	**249 (66.6%)**
Blasting	3 (33.3%)	38 (18.6%)	12 (8.2%)	7 (50.0%)	**60 (16.0%)**
Dust	4 (44.4%)	35 (17.2%)	14 (9.5%)	2 (14.3%)	**55 (14.7%)**
Light	0	8 (3.9%)	1 (0.7%)	0	**9 (2.4%)**
Other	1 (11.1%)	3 (1.5%)	2 (1.4%)	0	**6 (1.6%)**
Total	**9**	**204**	**147**	**14**	**374**
1. 03 December to 31 December				2. 01 January to 16 September	
Source: Integra Operations Pty Ltd					

3.6 REVIEW OF APPROVED STATEGIES, PLANS AND PROGRAMS

3.6.1 Introduction

A summary of the applicable strategies, plans and programs and their status is provided in **Table 3.4**.

Table 3.4
Status of Current Environmental Strategies, Plans and Programs

Management Plan	Cond No.	Status
Project Approval 08_0101 and 08_0102		
Noise Management Plan *Noise Management Plan 2014 – 2017* (Integra 01 September 2014)	*Schedule 3, Condition 10*	Approved by DPE 15 September 2014.
Blast Management Plan *Blast Management Plan 2012 – 2015* (Integra 21 August 2013)	*Schedule 3, Condition 19*	Approved by, then, NSW Planning & Infrastructure on 16 October 2012
Air Quality & Greenhouse Gas Management Plan *Air Quality and Greenhouse Gas Management Plan* (Integra, 01 September 2014),	*Schedule 3, Condition 26*	Approved by DPE 18 September 2014.
Extraction Plan	*Schedule 3, Condition 30*	Not yet applicable. A subsidence management plan (SMP) for Panels 10 to 17 was approved by DRE on 17 October 2008, i.e. prior to the issue of this project approval.
Water Management Plan *Water Management Plan 2014 – 2017* (Integra 22 October 2014).	*Schedule 3, Condition 40*	Approved by DPE on 12 November 2014.
Biodiversity Management Plan *Biodiversity Management Plan* (Integra, 14 November 2014).	*Schedule 3, Condition 44*	Approved by, then, NSW P&I 13 February 2013. The plan was subsequently reviewed 04 November 2014 and subsequently approved by DPE on 19 November 2014.
Heritage Management Plan *Aboriginal Heritage Management Plan Integra Open Cut Project* (AECOM, 04 June 2012). *Stage 2 Non-Aboriginal Heritage Management Plan* (Integra, 11 October 2012).	*Schedule 3, Condition 47*	Approved by, then, NSW Planning & Infrastructure 01 June 2012. Approved by, then, NSW Planning & Infrastructure 12October 2012.
Waste Management Plan Waste Management Plan 2012-2015 (Integra, 04 June 2012).	*Schedule 3, Condition 54*	Approved by, then, NSW Planning & Infrastructure 01 June 2012.
Rehabilitation Management Plan *Rehabilitation Management Plan* (Integra, 04 June 2012).	*Schedule 3, Condition 58*	Rehabilitation Plan 2012-2015 dated 4 June 2012 was sent as a draft to DRE in March 2012, however, no comments were received. No approval was ever issued by DRE.
Environmental Management Strategy *Environmental Management Strategy* (Integra, 21 September 2012).	*Schedule 5, Condition 1*	Approved by, then, NSW Planning & Infrastructure 16 October 2012.
Environment Protection Licence 3390		
Particulate Matter Control Best Practice Implementation, Wheel Generated Dust (14 August 2014).	Condition U1	Submitted to EPA 15 August 2014.
U2 Particulate Matter Control Best Practice Implementation – Disturbing and Handling Overburden under Adverse Weather Conditions (15 August 2014).	Condition U2	Submitted to EPA 15 August 2014.
Coal Mine Pollution Reduction Program Condition U3 Assessment (29 July 2014).	Condition U3	Submitted to EPA 04 April 2014.

Table 3.4 (Cont'd)
Status of Current Environmental Strategies, Plans and Programs

Management Plan	Cond No.	Status
Mining Tenements		
Mining Operations Plan Integra Mine Complex Open Cut Operations 2013 to 2014 (08 January 2013).	Condition 3(a) and 2(1)	Approved by DRE on 18 January 2013.
Mining Operations Plan Glennies Creek Colliery February 2009 to March 2015.		Approved by DRE on 16 November 2007.
Additional Management Plans		
Conceptual Mine Closure Plan (Hansen Bailey, 14 February 2013).	-	
Tailings Dams TD1/TD2 Capping Strategy (Aurecon, 16 March 2012).	-	
Glennies and Station Creek Riparian Management Plan (Integra, 18 November 2014).	-	

When reviewing these management plans, in accordance with *Draft Guidelines – Independent Environmental Audits of Mining Projects* (NSW P&I, 2014) a critical review was undertaken to identify:

- whether the plans are adequate for determining compliance with consent requirements;
- if the plans are consistent with current best practice; and
- whether current management systems, proposed actions and measures are adequate.

A summary of the review of each management plan is provided as follows.

3.6.2 Noise Management Plan

Over the course of the audit period, three Noise Management Plans (NMP) were in operation, namely:

- Noise Management Plan dated 30 April 2011 submitted to the (then) NSW P&I on 30 April 2011. At the time of the 2011 Independent Audit, this had not been finalised and approved.
- Noise Management Plan October 2012, dated 10 October 2012 and approved by the (then) NSW P&I on 09 October 2012.
- *Noise Management Plan 2014 – 2017*, dated 01 September 2014 and approved by DPE 15 September 2014.

For the purpose of the audit, the 15 September 2014 NMP has been reviewed and assessed. At the outset, it is acknowledged that the management plan has generally been prepared to a high standard with a strong focus upon monitoring and preventative management measures. Generally the NMP has been prepared in accordance with Project Approval 08_0101 and 08_0102, however, areas for review / improvement include the following.

- Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 10(d)* requires provision for annual validation of the noise model. The NMP states the Company is investigating the feasibility of noise modelling tools but does not provide a timeframe for review.

  The use of validation modelling, even during care and maintenance operations, provides a useful tool in reviewing and assessing noise monitoring results and in planning ongoing operations. For example, where monitoring has recorded exceedance of noise limits but during meteorological conditions for which the limits do not apply, a validated noise model can provide an indication as to what the received levels may have been under applicable meteorological conditions. See **Recommendation IMC01/14**.

- Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 10(e)* requires a protocol to be prepared in consultation with the owners of surrounding mines to minimise the cumulative noise impacts. Section 5.2.2 of the 2014 NMP states that, while real-time data sharing is possible, commitments from other mines to facilitate this has not yet been achieved and no formal protocols are in place. In the interim, if higher mine noise is detected and considered to be a result of activities at another mine, a person from Despatch Department is to contact that site and inform them.

  Whilst the Company has appropriately included interim measures, consultation with surrounding mine operators should continue and the NMP updated when an agreed protocol is in place. See **Recommendation IMC02/14**. This should preferably be in place prior to the recommencement of operational activities.

- Project Approval 08_0101 and 08_0102 states various noise limits, including operational, acquisition and cumulative limits. These limits apply to privately-owned residences and should also not exceed 25% of privately owned land. Section 4.1.1 of the NMP notes that the 25% limit is not addressed in the NMP and, as recommended in the 2011 independent audit, the limit should be removed as it is not practical to determine.

  Since the completion of the 2011 independent audit, three modification applications have been lodged, however, none of these applications have sought to remove this requirement. See **Recommendation IMC03/14**.

- Minor improvements to document quality including rectification of incorrect / missing table cross references and improved quality of figures (particularly Figure 2 Mine Site and Receptors). See **Recommendation IMC59/14**.

Overall, the NMP is considered to provide current best practice management measures and systems and should provide for compliance with the limits / criteria and requirements of Project Approval 08_0101 and 08_0102 and EPL 3390.

3.6.3 Blast Management Plan

Over the course of the audit period, two blast management plans (BMP) were in operation, namely:

- *Blast Management Plan*, dated April 2011, and submitted to the (then) NSW Planning & Infrastructure 03 May 2011.
- *Blast Management Plan 2012 – 2015*, dated 17 July 2012, and approved by the (then) NSW Planning & Infrastructure on 16 October 2012. The *Blast Fume Management Strategy* forming Appendix C of the BMP was approved by the (then) NSW Planning & Infrastructure on 04 February 2013.

It is noted that the Blast Management Plan 2012 – 2015, dated 21 August 2013 is an identical document to the version of the plan approved on 16 October 2012.

For the purpose of the audit, the 21 August 2013 BMP has been reviewed and assessed. At the outset, as for the NMP, it is acknowledged that the management plan has generally been prepared to a high standard with a strong focus upon monitoring and preventative management measures. Generally the BMP has been prepared in accordance with Project Approval 08_0101 and 08_0102, however, areas for review / improvement include the following.

- Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 19(c)* requires the BMP to describe the measures that would be implemented to ensure that the public can get up-to-date information on the proposed blasting schedule on site.

  Section 5.1 of the BMP states that neighbours would be notified in accordance with the contact list and time requirement for notification and Table 3.1 outlines personnel responsibilities for notification and update of blast signs. However, the Company website also includes blast notifications and information can be obtained by calling the Community Hotline (1800 505 361). The BMP does not include these two methods or responsibility for their maintenance / update. See **Recommendation IMC05/14**.

- Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 19(e)* requires the BMP to include a protocol that has been prepared in consultation with the owners of the nearby mines for minimising and managing the cumulative blasting impacts of the mines.

  Section 3 of the BMP outlines roles and responsibilities which includes coordinating blasting with the nearby mines to minimise cumulative impacts and ensure no blasts are initiated within 5 minutes of each other.

  Whilst this protocol has not been formalised with surrounding mines, an informal protocol is in place with various examples were sighted of correspondence confirming notification between the surrounding mine sites. Whilst this is commended, as the exact timing for blasting is dependent on a range of factors, including weather conditions, it would be preferable to formally plan for these situations to ensure that blasts are not inadvertently initiated simultaneously or within the nominated 5 minutes. See **Recommendation IMC06/14**.

Despite the exceedances of relevant criteria / limits during the audit period (see Section 3.3.2), overall, the BMP is considered to provide current best practice management measures and systems and should provide for compliance with the limits / criteria and requirements of Project Approval 08_0101 and 08_0102 and EPL 3390.

3.6.4 Air Quality and Greenhouse Gas Management Plan

Over the course of the audit period, three air quality and greenhouse gas management plans (AQGGMP) were in operation, namely:

- *Air Quality and Greenhouse Gas Management Plan,* dated 30 March 2011, and submitted to NSW Planning and Infrastructure on 30 March 2011. A letter of approval for this document has not been located.
- *Air Quality and Greenhouse Gas Management Plan,* dated 12 October 2012, and approved by the (then) NSW Planning & Infrastructure on 16 October 2012.
- *Air Quality and Greenhouse Gas Management Plan*, dated 01 September 2014, and approved by the (then) NSW Planning & Infrastructure on 18 September 2014.

For the purpose of the audit, the 18 September 2014 AQGGMP has been reviewed and assessed. At the outset, as for the NMP, it is acknowledged that the management plan has been prepared to a high standard with a strong focus upon monitoring and preventative management measures. The continued review and implementation of additional management measures is also commended.

Generally the AQGGMP has been prepared in accordance with Project Approval 08_0101 and 08_0102, however, areas for review / improvement include the following.

- Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 26(d)* requires the AQGGMP to include monitoring for $PM_{2.5}$. Whilst use of the regional monitoring network can satisfy this requirement, the condition requires "*sufficient justification*". Whilst the AQGGMP states which regional monitors will be utilised, no justification is provided as to why these provide satisfactory monitoring locations. See **Recommendation IMC14/14**.
- Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 26(e)* requires a protocol to be prepared in consultation with the owners of surrounding mines to minimise the cumulative air quality impacts. Section 4.1 of the 2014 AQGGMP states that the Company has been negotiating with neighbouring mines for access to real-time monitoring data but negotiations remain ongoing. Additionally, whilst it is advised by Company personnel that an informal protocol is in place where surrounding mines are advised of any elevated monitoring results, no formal protocol is outlined within the AQGGMP nor is in place.

Consultation with surrounding mine operators should continue and the AQGGMP updated when an agreed protocol is in place. See **Recommendation IMC15/14**. This should preferably be in place prior to the recommencement of operational activities.

- The AQGGMP refers to a range pollution reduction studies being completed in accordance with EPL 3390 and also includes measures applicable to the care and maintenance phase. Prior to the recommencement of operational activities, the AQGGMP should be reviewed and updated to include the additional measures determined through the ongoing pollution reduction studies and to remove measures that are no longer applicable. See **Recommendation IMC16/14**.
- Minor improvements to the AQGGMP include:
  - specifying the approximate volume of copper sulfate solution to add to new deposited dust gauge sample bottles (Appendix B of the AQGGMP); and
  - rectification of incorrect / missing table cross references (see page 14 of plan).

In addition to the AQGGMP, a range of additional programs and reports have been prepared during the audit period including:

- *Integra Particulate Matter Control Best Practice Pollution Reduction Program Integra Mine Complex*, dated 26 July 2012;
- *Draft Monitoring Program to Assess Compliance with Environment Protection Licence 3390 Condition U2,* dated 19 July 2013;
- *Draft Monitoring Program to Assess Compliance with Environment Protection Licence 3390 Condition U1,* dated 08 August 2013;
- *Particulate Matter Control Best Practice Implementation, Wheel Generated Dust*, dated 14 August 2014; and
- *U2 Particulate Matter Control Best Practice Implementation – Disturbing and Handling Overburden under Adverse Weather Conditions*, dated 15 August 2014.

These various programs and reports have been prepared and submitted to EPA in compliance with EPL 3390 (see **Appendix 4**). It is noted that the requirement for the above programs / reports have now been removed from EPL 3390 (licence version 15 December 2014).

Overall, the AQGGMP and additional studies and reporting provide for best practice air quality management and the Company is commended for its continual improvement in air quality management. The measures and systems within the AQGGMP are considered adequate to achieve compliance with the criteria and requirements of Project Approval 08_0101 and 08_0102 and EPL 3390.

3.6.5 Water Management Plan

Over the course of the audit period, three Water Management Plans (WMPs) were in operation, namely:

- *Water Management Plan*, submitted to the (then) Department of Planning on 31 August 2011.
- *Water Management Plan 2012 - 2015*, dated 04 June 2012, and approved by the (then) NSW Planning & Infrastructure on 01 June 2012.
- *Water Management Plan 2014 - 2017*, dated 22 October 2014, and approved by DPE on 12 November 2014.

For the purpose of the audit, the 22 October 2014 WMP has been reviewed and assessed. At the outset, as for the air and noise management plans, it is acknowledged that Volume 1 of the WMP has been prepared to a high standard and has includes consideration of the current care and maintenance phase. In particular, Section 2.4.2 provides a water balance and Section 4.2 provides for water monitoring and inspections during the care and maintenance phase. These sections appear to adequately provide for the care and maintenance phase, however, it is noted that the water balance confirms excess water volumes of 974ML per year. Whilst it is stated that emergency water storage is available within the mining voids, there is no information provided as to the likely timeframe before the voids may be required or how this would be managed (**Recommendation IMC18/14**).

Despite this, the WMP has generally been prepared in accordance with Project Approval 08_0101 and 08_0102. Additional areas for review / improvement include the following.

- The Erosion and Sediment Control Plans (ESCPs) are provided in a separate volume (Volume 2) which consists of the following components.
  - Appendix A – Common Elements of the ESCPs;
  - Appendix B – ESCP for the South Pit (Western Extension)
    "Erosion and Sediment Control Plan – Design Specification Document Western Extension Year 1 – 3 (GSSE, June 2011)";
  - Appendix C – ESCP for the North Open Cut
    Integra Northern Open Cut Water Management Plan (GeoTerra, 15 September, 2010); and
  - Appendix D – ESCP for Other Disturbed Areas
    Integra Northern Open Cut Erosion and Sediment Control Plan (CBE, January 2009).

  It is unclear the exact geographical coverage of each of the sub-plans and no overarching map is provided. Furthermore, the various sub-plans have been prepared at different points of time, contain inconsistencies and reference superseded approvals rather than the current Project Approval. The ESCPs require review and update (**Recommendations IMC19/14** and **IMC21/14**).

- Appendix C of Volume 1 of the 2014 WMP provides a summary of surface water baseline data for pH and EC measurements Glennies Creek and Station. However, the surface water monitoring program also includes sampling within Bettys Creek, Main Creek, Martins Creek, Stony Creek, Blackwattle Creek and Tisdells Creek. Additionally, no baseline data is provided for water levels or other analytes (**Recommendation IMC23/14**).

The 2014 WMP also cross references *Procedure to monitor Groundwater Inflows into the North Open Cut* (ENV.PRO_2124). The purpose of the procedure is to enable the determination of the actual groundwater inflows to the North Open Cut and generally provides an adequate methodology for determining groundwater inflows. However, the map included within the procedure is of poor quality and, without reference to additional material, it is considered unlikely that personnel could implement the procedure without prior knowledge or reference to additional material (**Recommendation IMC29/14**). It was also determined during the audit that the procedure has not been implemented and groundwater inflows have not been calculated (**Recommendation IMC22/14**).

No procedure was located for monitoring of groundwater inflows to the South Pit or underground workings (**Recommendation IMC29/14**).

Whilst the measures outlined within the WMP (volumes 1 and 2) generally appear to follow best practice, it is not considered that the WMP is adequate in providing guidance in achieving best practice and compliance with Project Approval 08_0101 and 08_0102, EPL 3390 and relevant water licences. This is principally due to the inconsistencies and lack of cohesiveness of the ESCPs and failure to prepare and implement procedures to monitor all groundwater inflows.

3.6.6 Biodiversity Management Plan

Over the course of the audit period, two Biodiversity Management Plans were in operation, namely:

- The initial plan (Revision 4) was dated 7 February 2013 and approved on 13 February 2013.
- The second plan was dated 14 November 2014 – its preparation followed an on-site review by DPE representatives and was subsequently approved on 19 November 2014.

For the purpose of this audit, the 14 November 2014 Plan has been reviewed and assessed and predominantly relied upon for the compliance of relevant approval conditions.

The Biodiversity Management Plan documents the progress on how the six biodiversity offset areas (BOAs) covering an area of approximately 650ha have been established and the various management measures to be adopted to maintain/enhance all areas. It is noted that the areal extent of the BOAs is greater than that nominated in Project Approval 08_0101 and 08_0102 which is commendable and effectively exceeds best practice.

The audit has identified that the Biodiversity Management Plan has been prepared to address the bulk of the matters listed in the conditions of Project Approval 08_0101 and 08_0102. It is considered that the document adequately addresses the relevant project approval requirements with the exception of a few matters that require further coverage in the document, relating specifically to:

- implementing revegetation and regeneration within the offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
- a description of the contingency measures to mitigate potential risks to the successful implementation of the biodiversity offset strategy; and
- more precisely identify who would be responsible for monitoring and reviewing the plan.

The recommendations for the follow-up of these issues are **IMC33/14** to **IMC35/14** .

Overall, it is considered that the current management systems and documented actions and measures are adequate to achieve the required outcomes for the biodiversity offset areas for the Integra Mine Complex. Vale Australia Holdings Pty Ltd (on behalf of Integra Coal Operations Pty Ltd) finalised the security of $534 000 for the biodiversity offset areas through the ANZ Bank on 8 August 2013.

3.6.7 Heritage Management Plan

Over the course of the audit period, the applicable Aboriginal Heritage Management Plan (AHMP) was the *Aboriginal Heritage Management Plan Integra Open Cut Project*, originally dated 02 December 2010 and updated on 04 June 2012, and approved by the (then) NSW Planning & Infrastructure on 01 June 2012.

The AHMP focuses upon the open cut and CHPP areas and does not specifically address the underground mine area. However, a separate environmental management plan for the underground operations has been prepared – EMP_0004 – Aboriginal Cultural Heritage Management Plan (dated 18 August 2009). The environmental management plan addresses similar matters to the AHMP, identifies the locations of previously identified heritage sites within the underground mine area and provides specific procedures relating to the underground mine area.

It would be preferable that an updated and integrated AHMP be prepared addressing all components of the mine complex. It is also recommended that, during the update of the AHMP, the status of the recommended management measures also be updated, including the whether or not the listed sites are fenced or if they have been collected (**Recommendation IMC37/14**). Despite these recommended improvements, the existing documentation generally addresses the components required by Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 47.*

Non-Aboriginal heritage has been managed under the *Stage 2 Non-Aboriginal Heritage Management Plan* (NAHMP) which was approved by the (then) NSW P&I 12 October 2012. The NAHMP addresses the relevant requirements of Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 47*, however, the version of the management plan on the Company website does not include the referenced figures or appendices (**Recommendation IMC36/14**). Overall, the NAHMP appears to meet best practice requirements and provides for compliance against the requirements of Project Approval 08_0101 and 08_0102.

3.6.8 Waste Management Plan

During the audit period, the *Waste Management Plan 2012 – 2015* (dated 04 June 2012) was in operation. The WaMP was initially submitted to the (then) NSW P&I on 30 March 2011 but was subsequently revised and approved by NSW P&I on 01 June 2012,

The WaMP addresses the management of waste rock (overburden and interburden) and CHPP rejects as well as other wastes, including hazardous wastes. The WaMP appears to appropriately cover all likely waste streams and adequately addresses the components required by Project Approval 08_0101 and 08_0102 *Schedule 3 Condition 54*. A minor improvement is recommended, namely cross reference to other relevant management plans / procedures, in particular hydrocarbon handling and bioremediation management (**Recommendation IMC38/14**). Overall, the WaMP is considered to provide for best practice management and adequately provides for achieving compliance with the requirements of Project Approval 08_0101 and 08_0102.

3.6.9 Rehabilitation Management Plan

Over the course of the audit period, two Rehabilitation Management Plans were in operation, namely:

- Rehabilitation Plan dated 7 June 2011, approval by DRE was not able to be confirmed during the audit; and
- Rehabilitation Plan 2012-2015 dated 4 June 2012, submitted as a draft to DRE in March 2012, however, no comments (or approval) have been received.

For the purposes of this audit, the 4 June 2012 Rehabilitation Management Plan has been reviewed and assessed. Overall, the document is too generic to assist site personnel to plan and undertake the required rehabilitation activities in the manner required. It is considered that the document is not adequate. The document needs to be updated by March 2015 which should enable the lack of detail to be remedied. Each of the requirements in Condition 58 should be fully addressed in the updated plan with emphasis placed on improving the level of detail and cross-referencing, where appropriate, to the relevant site specific procedures and related documents used on site.

Documentation recording previous rehabilitation and an evaluation of success/failures, etc. should ideally be presented in the Rehabilitation Management Plan (or cross-referenced to other documents) to provide guidance on the approach to future rehabilitation.

Recommendations IMC39/14, **IMC40/14** and **IMC41/14** reflect the above comments.

3.6.10 Environmental Management Strategy

The current Environmental Management Strategy (EMS) was approved by the (then) NSW P&I 16 October 2012. The EMS addresses all the components required by Project Approval 08_0101 and 08_0102 *Schedule 5 Condition 1* and relates to all aspects of the Integra Mine Complex. Whilst the EMS is comprehensive, it requires an update to ensure all cross references to approved management plans, approvals and guidelines / statutory requirements. Additional mapping identifying the entire mine complex, including the underground mine area, should also be included (**Recommendation IMC47/14**).

4. RECOMMENDATIONS

4.1 INTRODUCTION

The audit of the Integra Mine Complex has identified a range of practices, activities and documentation that could be improved to achieve compliance and/or raise the standard of environmental performance at the mine. Each of the following recommendations has previously been referred to throughout Section 3 and/or **Appendix 3, 4** and **5**. A brief commentary is provided in italics beneath each recommendation.

In light of the results of the environmental audit, a total of 61 recommendations are provided for the Company's consideration and action. Recommendations identified with a '*' are recommendations provided by the specialist peer reviewers. Recommendations identified with a '#' have been modified as a result of comments provided by the specialist peer reviewers.

4.2 NOISE AND VIBRATION

IMC01/14 The noise model for the complex should be validated on an annual basis in accordance with Project Approval 08_0101 and 08_0102 Schedule 3 Condition 10(d) and the Noise Management Plan updated to reflect the process and information requirements.

In addition to meeting conditional requirements the use of validation modelling, even during care and maintenance operations, provides a useful tool in reviewing and assessing noise monitoring results and in planning ongoing operations.

IMC02/14 Operators of surrounding mines, including Ashton, Rix's Creek and Mt Owen, should be formally approached again in relation to the sharing of noise data and a protocol to minimise the potential for cumulative noise impacts. An agreed protocol should preferably be in place prior to re-commencement of operational activities.

Schedule 3 Conditions 9(f) and 10(e) require co-ordinated management between the Company and surrounding mines to minimise the potential for cumulative noise. Whilst the Company maintains a policy of informing surrounding mines of excessive noise generated by those sites, no formal protocol or management strategy has been prepared.

IMC03/14 A submission should be prepared seeking a modification to Project Approval 08_0101 and 08_0102 to remove the need to assess noise limits over 25% of privately owned land. Alternatively, approval may be sought for either annual review (as part of the validation of the noise model) or confirmation using the noise model upon receipt of a valid and non-vexatious claim.

Noise monitoring in itself is unable to confirm compliance with noise limits over a proportion of a landholding. Modelling and production of noise contours is currently the only practical method to determine compliance. It is acknowledged that attempting to regularly complete this modelling would be a substantial expensive and, unless valid complaints are being received regarding excessive noise across a landholding, it provides little additional value to the monitoring undertaken at residences.

IMC04/14 The noise consultant should be requested review the quarterly noise reports to:

– include a definitive review and statement of compliance, or otherwise, for all noise limits, including cumulative noise; and

– state the stability class instead of / as well as the Sigma/Theta value.

All monitoring reports should provide definitive assessments of compliance against relevant limits and include sufficient information for the reader to interpret the results without reference to additional documentation.

IMC05/14 The Blast Management Plan 2012-2015 should be updated to include the use of the website and Community Hotline as part of the blast notification process. Responsibility for update of the website and addressing enquiries through the hotline should also be included.

The current Blast Management Plan does not include reference to the use and update of the website or use of the Community Hotline.

IMC06/14 A formal protocol should be developed and agreed to with surrounding mine operators to ensure compliance with the Company's protocol of not initiating blasts within 5 minutes of surrounding mines.

Whilst examples were sighted of correspondence between surrounding mine sites providing notification of planned blasts, no formal protocol is in place. As the exact timing for blasting is dependent on a range of factors, including weather conditions, it would be preferable to formally plan for these situations to ensure that blasts are not inadvertently initiated simultaneously or within the nominated 5 minutes.

IMC07/14 Measures should be put in place to request and follow up the supply of compliance reports from train operators confirming that the locomotives are approved to operate on the NSW rail network.

Section 5.1.2 of the 2014 Noise Management Plan requires annual requests of train operators to supply compliance reports, or similar, to confirm the locomotives are approved. Copies of such reports could not be supplied during the audit. Notably, Schedule 3 Condition 8 of Project Approval 08_0101 and 08_0102 places the responsibility on the Company to ensure that only approved locomotives access the rail spur.

IMC08/14* When noise monitoring identifies an exceedance of the criteria that has occurred under meteorological conditions for which the limits do not apply, a review and statement of compliance under applicable conditions should be provided. **(Peer Review No. IMCN/1)**

IMC09/14* Where noise exceedances are measured under non-applicable meteorological conditions, the appropriate actions are recorded and reported in accordance with the NMP. **(Peer Review No. IMCN/2)**

IMC10/14* An estimation of cumulative noise levels (i.e. LAeq(period) from total mining operations in the area) should be provided and compared to the cumulative noise criteria. Data from the real time noise monitoring systems around the site can readily be analysed to determine site specific differences between the LAeq(15minute) and LAeq(period) noise levels. **(Peer Review No. IMCN/3)**

IMC11/14* All real-time noise monitoring data should be analysed (in conjunction with the meteorological data) and both reported upon in each annual review and used to validate the noise model. **(Peer Review No. IMCN/4)**

IMC12/14* Once formalised, the NMP should be updated to include cumulative noise protocols. **(Peer Review No. IMCN/5)**

IMC13/14* The BMP should be updated to include a formal protocol for co-ordination of blasts with surrounding mines. **(Peer Review No. IMCN/6)**

4.3 AIR QUALITY

IMC14/14# The 2014 *Air Quality and Greenhouse Gas Management Plan* should be updated to include a justification as to the adequacy in using the regional network monitors at Camberwell and Singleton for $PM_{2.5}$ monitoring. The justification should consider the proximity of the monitors, an analysis of $PM_{2.5}$ trends across the Upper Hunter and relationship between concurrent PM_{10} and $PM_{2.5}$ concentrations at the two monitoring stations. **(Peer Review No. IMCA/1)**

Whilst the use of the regional monitors appears to be appropriate and Schedule 3 Condition 26(d) states that the obligation may be met by use of the regional monitors, specific justification is to be provided.

IMC15/14# Operators of surrounding mines, including Ashton, Rix's Creek & Mt Owen, should be formally approached again in relation to the sharing of air quality data and a protocol to minimise the potential for cumulative air quality impacts. An agreed protocol should preferably be in place prior to re-commencement of operational activities. This protocol may 'piggy back' the regional forecasting model and regional dust management plan being coordinated by the NSW Minerals Council. **(Peer Review No. IMCA/2)**

Schedule 3 Conditions 25(f) and 26(e) require co-ordinated management between the Company and surrounding mines to minimise the potential for cumulative air quality impacts. Whilst the Company maintains a policy of informing surrounding mines of elevated monitoring results, no formal protocol or management strategy has been prepared.

IMC16/14 The 2014 *Air Quality and Greenhouse Gas Management Plan* should be reviewed prior to the recommencement of operational activities. Where applicable, modified or additional management measures determined through the ongoing pollution reduction studies undertaken under EPL 3390 should be reflected in the reviewed plan. Additionally, care and maintenance measures no longer applicable should be removed. **(Peer Review No. IMCA/3)**

Commendably, the Company has prepared an extensive Air Quality and Greenhouse Gas Management Plan and continues to undertake studies into pollution reduction measures which will require ongoing updates to the management plan.

IMC17/14 Each Annual Review should provide specific detail on the status and progress of greenhouse gas emission reduction initiatives. **(Peer Review No. IMCA/4)**

Statement of Commitment No. U71 requires that these initiatives be reported annually as part of the Annual Review. The Annual Reviews during the audit period do not any provide specific information on the status of these initiatives.

4.4 SOIL AND WATER

IMC18/14 The water balance and management of water volumes during care and maintenance should be further reviewed and the Water Management Plan updated to provide additional detail and guidance as to the likely time period before emergency water storage in the open cut voids may be required and how this storage will be managed. **(Peer Review No. IMCll/14)**

The 22 October 2014 WMP provides a water balance for the care and maintenance period and identifies that there will be an excess of 974ML per year. Whilst it is stated that the mine voids can be used for emergency water storage, there is no guidance as to the likely time period and how this storage will be managed. For example, will the underground workings continue to be dewatered and will excess water be preferentially stored in a particular void? Are there geotechnical considerations / implications for future operations, etc.

IMC19/14 The Erosion and Sediment Control Plans (ESCPs) should be reviewed and updated to provide an up-to-date, consistent and coordinated plan. In the event that separate ESCPs are retained for each component of the complex, the coverage of each ESCP should be clearly defined on a figure. **(Peer Review No. IMCp/14)**

Currently the ESCP consists of four reports including three separate ESCPs and an overarching report prepared by different authors from 2009, 2010 and 2011. The plans also reference superseded approvals and contain a range of inconsistencies. It is also difficult to confirm that all areas of the complex have been appropriately addressed by the various ESCPs.

IMC20/14* Add complete or compile relevant Mine survey and audit against the design specifications for sediment basins, clean water drains and dirty water drains, contained in the ESCPs. Records of date of construction, and any subsequent maintenance, should also be compiled. **(Peer Review No. IMCW/03)**

Implementation of an ESCP is dependent on the identified structures and facilities being constructed as designed and in the order nominated. That is, individual features of the ESCP will not necessarily operate independently of other features. Failure to construct one element of the overall erosion and sediment control management system, either to design or as per the required timing, may jeopardise the overall function of the system.

IMC21/14* The reviewed and updated Erosion and Sediment Control Plans (ESCPs) should include information on the capacity of central dirty water dams to receive accumulated water from other sediment basins, along with the protocols of procedures to be followed prior to, during and following transfer of water. **(Peer Review No. IMCp/14(b))**

The ESCP nominate 'central' basins to accept surplus dirty water, however there is no detail provided to confirm these basins will have sufficient capacity, or how transfer will be managed and/or monitored.

IMC22/14 The volume of groundwater inflows into the open cuts should be calculated / estimated in accordance with the 2014 Water Management Plan (and cross referenced procedure – see also **Recommendation IMC29/14**) and the details of the estimated volumes reported within the respective Annual Review. **(Peer Review No. IMCq/14)**

The volumes of groundwater inflows do not appear to have been calculated / estimated or reported during the audit period. It is a requirement of Schedule 3 Condition 40 to monitor groundwater inflows and Schedule 5 Condition 3 to report monitoring results within the Annual Review. The measurement of the groundwater inflows are also required in order to determine that the Company has appropriate water entitlements for the volume of water take.

IMC23/14 The Surface Water Baseline Data (Appendix C) within the 2014 Water Management Plan should be expanded to include additional analytes and water level monitoring for all sites included within the surface water monitoring program. **(Peer Review No. IMCr/14)**

Currently baseline data is only provided for pH and Electrical Conductivity within Glennies Creek and Station Creek. However, the surface water monitoring program also includes sampling within Bettys Creek, Main Creek, Martins Creek, Stony Creek, Blackwattle Creek and Tisdells Creek and includes a range of other analytes and water level monitoring. To enable ongoing comparison and evaluation of trends, baseline data for all monitoring sites should be compiled.

IMC24/14 Systematic photographic monitoring should be undertaken of all monitored creeks. This could be undertaken concurrently with water quality monitoring. **(Peer Review No. IMCy/14)**

Statement of Commitment No. U48 requires the maintenance of a photographic record of creeks and dam walls to determine baseline rates of erosion. Currently photographic records are only available for Main Creek.

IMC25/14 Ensure that future MOPs provide specific soil stripping, handling and stockpile procedures including stripping depths. **(Peer Review No. IMCaa/14)**

Statement of Commitment No. B1 requires different soils to be stripped to specific depths, however, the current MOP does not specify these details.

IMC26/14 The scouring and erosion within the dirty water management system for the South Pit should be repaired and stabilised. **(Peer Review No. IMCdd/14)**

A number of scours and erosion areas were observed within the catch drains for the South Pit dirty water system. Whilst these are wholly contained within the dirty water catchment, ongoing erosion could limit the effectiveness of the system and/or potential contribute to an incident.

IMC27/14 The clean and dirty water drainage systems should be fully reviewed and opportunities identified to reduce the risk of water mixing between the systems. This should include, but not be limited to:

- changing the camber of the road between the clean and dirty water drains adjacent Dam D1 to drain towards the dirty water drain rather than the clean water drain; and
- measures to reduce the risk of dirty water from the dirty water drain at "the cattle yards" overflowing into the downslope clean water drain. **(Peer Review No. IMCee/14)**

A number of potential risks were identified where dirty water and clean water could mix. Proactive management of such risks will help reduce the likelihood of an incident and maintain best practice management.

IMC28/14# The site's regular checklist should be reviewed to ensure that regular checks and subsequent actions are taken to maintain the erosion and sediment control systems. This includes ensuring that outlets and dams are desilted as required and the silt / sediment is appropriately disposed of, the identification and rectification of erosion and scouring and the repair or removal of sediment fencing. The outcomes of these checks should be recorded and retained as a formal log. **(Peer Review No. IMCff/14)**

Whilst the water management system appeared to be generally appropriately maintained, a number of instances of erosion, siltation and redundant silt fencing were observed. Successful operation of the erosion and sediment control system is dependent on the identified structures and facilities continuing to function as designed. It is important that this monitoring and maintenance is recorded to ensure monitoring and maintenance regimes continue to be implemented.

IMC29/14 The Procedure to monitor Groundwater Inflows into the North Open Cut should be reviewed and updated to include (or provide cross reference to) sufficient information to enable personnel to implement the procedure. The procedure should also be extended to include the South Pit and underground workings. **(Peer Review No. IMCgg/14)**

Whilst the current procedure generally provides an adequate methodology for calculating inflows, it does not provide sufficient information to properly implement the procedure. The procedure also does not provide for the calculation of groundwater inflows for other areas of the Integra Mine Complex.

IMC30/14* Seek modification to Project Approval 08_0101 and 08_0102 (administrative) to modify and consolidate the Statement of Commitments appended to the approval. **(Peer Review No. IMCW/01)**

Commitments such as those to prepare a Site Water Management Plan and provide for management of Betty's Creek diversion are either covered by consent conditions or the relevance of these has been reduced. It is considered advisable that where a consent condition exists for a particular aspect of environmental management, reference to potentially contradictory or outdated commitments is removed.

IMC31/14* Results of annual surface water monitoring should be presented graphically and an analysis of any trends in water quality between periods identified and discussed. **(Peer Review No. IMCW/02)**

Identification of trends in the quality of water retained at the Mine may allow for potentially non-compliant discharges or events to be identified and prevented ahead of time. This will promote a proactive approach to management of water quality at the Mine.

4.5 BIODIVERSITY

IMC32/14# During the next revision of the Biodiversity Management Plan, more auditable performance criteria should be included in the document for all land management measures, e.g. seasonal/annual photo point monitoring of offset areas.

The current version of the Biodiversity Management Plan incorporates a range of management strategies which are somewhat generic and, as a consequence, provide little direction for on-site personnel to follow in order to achieve the biodiversity objectives. The provision of more auditable performance criteria with the management strategies will assist site personnel to better assess the progress with the biodiversity-related issues on site.

IMC33/14 During the next revision of the Biodiversity Management Plan, the items not fully covered in the Plan (listed in Condition 3(44)(c)) should be addressed in full.

The current Biodiversity Management Plan will benefit from its revision including each of the nominated items in the condition.

IMC34/14 Greater emphasis should be placed in future documents upon cross-referencing other internal documents (e.g. procedures) to the generalised management strategies in the Biodiversity Management Plan.

The range of documents reviewed for the IMC, such as the Biodiversity Management Plan (and Rehabilitation Management Plan), contain generic text which needs to be supported by site-specific procedures. Cross referencing these procedures in the key plans would be sufficient and provide site-based personnel with clear directions of where the operational detail is documented.

IMC35/14* During the next review of the Biodiversity Management Plan, the following matters should be addressed.

- Highlight up front the biodiversity values for the site, as identified through the EA, and actions focused around the protection and offset of these species and ecological communities and habitat for such. **(Peer Review No. IMCE/1)**
- Clearly outline the implementation of the revegetation/regeneration within the offset areas including itemisation of specific tasks, provision of checklists and timeframes, assigned responsibility and provide species lists and sourcing locations to align with vegetation communities and strata to be rehabilitated. **(Peer Review No. IMCE/2)**
- Align flora monitoring methodology (BMP, Section 5.1.1) with the latest BioBanking methodology. **(Peer Review No. IMCE/3)**
- Within the weed and pest management plan, clearly outline the method of approach for each weed and pest species, the seasonal target timeframe and yearly approach and performance criteria. **(Peer Review No. IMCE/4)**
- Detail the biodiversity offset (Section 6) area progress in terms of actions undertaken in the year prior and relative performance measures. **(Peer Review No. IMCE/15)**

During the biodiversity peer review, Biosis has identified a range of areas in which the Biodiversity Management Plan could be improved.

4.6 HERITAGE

IMC36/14 The version of the *Stage 2 Non-Aboriginal Heritage Management Plan* on the Company website should be replaced with a version containing the cross referenced figures and appendices.

It is important that the Company provide all relevant information associated with management plans, strategies and programs.

IMC37/14 The AHMP should be reviewed and updated to provide an integrated plan addressing all components of the mine complex including both open cut and underground operations. During the update, the status of the recommended management measures should also be updated, including the whether or not the listed sites are fenced or if they have been collected.

Currently the Company is operating under an approved AHMP which addresses the open cut and CHPP operations and a separate internal environmental management plan which addresses the underground operations. A consolidated approved plan would help to ensure that management of Aboriginal heritage across the complex is undertaken consistently.

4.7 WASTE

IMC38/14 The Waste Management Plan should be updated to cross reference other relevant procedures and plans, such as the hydrocarbon and bioremediation management plans.

The addition of such references would further improve the existing comprehensive Waste Management Plan.

4.8 REHABILITATION

IMC39/14 Plans should be prepared that record the year/season for all of the rehabilitation activities that have been undertaken within the IMC.

The documentation supplied does not contain sufficient records for future site personnel to gain an appreciation of when all areas were rehabilitated on site, the methods used and the failures/successes that can be relied upon when planning future rehabilitation activities. It would be desirable that this information is compiled on plans and supported by reference documentation.

IMC40/14 The extent of tree planting on rehabilitated landforms should be reviewed and compared with the areas nominated in the Rehabilitation Management Plan. A program should then be prepared and implemented to plant the areas not yet planted.

A comparison of the progress with woodland planting as displayed in the 2013 Rehabilitation Management Plan / Appendix 9 (Figure A) in Project Approval suggests that the Company's program for tree planting on areas that have been re-shaped and stabilised should be increased.

IMC41/14 The next version of the Rehabilitation Management Plan should more fully address the requirements of Condition 58a and 58b and either provide a greater level of detail on the various domains or cross-reference to other internal documents where the relevant detail is presented.

The text within the Rehabilitation Management Plan is somewhat generic and future on-site personnel would benefit from the inclusion of more detail or the cross referencing to procedures manuals, etc. that are maintained on site.

IMC42/14 Slope maps should be prepared (based on final landform contours) to demonstrate that the post-mine landform at the IMC complies with the maximum slopes of 10º (external) and 18º (internal).

Maps displaying final slopes would greatly assist to confirm (or otherwise) that the required final slopes are being achieved.

IMC43/14 The revegetation of suitable components of the Open Cut Area should be undertaken using species representative of the Ironbark Woodland.

This is a requirement within the Statement of Commitments (No. E8).

IMC44/14 Formal rehabilitation monitoring and reporting should be undertaken to record the progression of rehabilitation against the performance indicators within the Mining Operations Plan.

Statement of Commitment No. B12 requires topsoil to be spread to a nominal depth of 0.1m. Whilst it is advised that the operator is trained to do this and spot testing is completed, no formal records are retained. Additional performance criteria are also specified within the Mining Operations Plan.

IMC45/14 The South Pit bioremediation area should be appropriately signed to prevent 'fresh' material being placed, the existing material tested and either further treated or, if decontaminated, removed. The area should then be rehabilitated.

It was advised that the South Pit bioremediation area is no longer in use. It is best practice to minimise the areas of contamination and to rehabilitate areas no longer required for operations.

IMC46/14* During the next review of the Rehabilitation Management Plan, the following matters should be addressed.

- Documentation regarding previous rehabilitation activities, in terms of evaluation of success/failures should ideally be discussed in the RMP to guide future rehabilitation efforts. **(Peer Review No. IMCE/7)**
- Implementation of rehabilitation should be clearly outlined within the most relevant documentation on site, e.g. Mining Operations Plan, Rehabilitation Procedures, etc. The information included should address the itemisation of specific tasks, checklists and timeframes, responsibilities and the measure of performance for annual reporting purposes. **(Peer Review No. IMCE/8)**
- Weed management in Section 3.9, should highlight the method of approach and target season of activities as well as performance by which success is being measured. **(Peer Review No. IMCE/12)**
- Timeframes for specific rehabilitation activities (Section 5) undertaken (e.g. monitoring) in the year of review, should be stated and linked with rehabilitation objectives stated in the RMP in terms of progress and conformance. **(Peer Review No. IMCE/13)**

- More detail to be provided with regard to pest control (Section 3), in terms of pest fauna targeted and eradicated and performance by which success is being measured. **(Peer Review No. IMCE/14)**

During the biodiversity peer review, Biosis has identified a range of areas in which the Rehabilitation Management Plan could be improved.

4.9 COMPLIANCE AND OTHER MATTERS

IMC47/14 The Environmental Management Strategy should be reviewed and all cross references to approved management plans, approvals and guidelines / statutory requirements updated. Additional mapping identifying the entire mine complex, including the underground mine area, should also be included.

The existing Environmental Management Strategy was last reviewed 21 September 2012. Since that time, numerous management plans have been updated and some statutory requirements have changed, such as the need to report environmental harm immediately. The Project Approval has also been modified twice and the included mapping does not cover the entire complex.

IMC48/14 Formal records should be retained of all discussions / contact with government agencies, surrounding operators and landholders. Appropriate records of relevant 'informal' contact should also be retained including date, time, person(s) and any commitments / statements.

Whilst it is advised that various informal contact has been made with surrounding landholders regarding 'issues of concern', no records were available. A centralised system for recording these matters would both assist in providing continuity in community and government management (as Company personnel change) but also assist the Company in demonstrating that the 'issues of concern' have been appropriately addressed.

IMC49/14 The Annual Reviews should include as an appendix a compliance review against the conditions of Project Approval 08_0101 and 08_0102.

Schedule 5 Condition 3(c) requires the Annual Reviews to identify any non-compliance during the reporting period and actions being taken. Whilst a review of the recommendations from the previous Independent Environmental Audit is provided, no formal or methodical review of compliance is presented for the report year. Formal review of compliance should not be restricted to 3 yearly independent audits.

IMC50/14 An electronic database/file should be established to enable all documentation relevant to each condition of an approval, licence or lease to be located in a dedicated folder in the file. Some components may be worthwhile kept as a hard copy.

The documentation available for the ongoing operation and management of the IMC is now substantial and in order to assist both internal and external audits, there will be considerable benefit in compiling the suggested database/file. Diligence by all relevant personnel in maintaining this system will be of great benefit to ICO personnel, government agencies and future independent auditors.

IMC51/14 Available information associated with the application for EPL 3390 should be formally requested from the EPA.

Condition A3.1 of EPL 3390 requires operations to be undertaken in accordance with the proposal contained in the licence application. Whilst this information is likely to be out-dated, all reasonable efforts should be made to obtain this information and confirm compliance.

IMC52/14 All documentation identified as "not available" should be located and incorporated in the electronic database / file.

Not all relevant documentation, particularly correspondence, was located during and following the audit inspection.

IMC53/14 The hydrocarbon spillages and staining within and around the underground surface infrastructure areas should be remediated and appropriate measures put in place to minimise future spillages. This may include provision of additional storage / management facilities, review of equipment and plant maintenance requirements, and additional training in hydrocarbon storage, handling and spill response.

The degree and number of hydrocarbon spillages / staining across a range of areas within the underground surface infrastructure areas indicate that hydrocarbon management is not being undertaken in a competent manner.

IMC54/14 Incident reporting procedures should be reviewed to ensure that both DPE and EPA and any other relevant agencies are notified in writing within the required 7 day period. It is noted that the period is applicable from the date of the incident. If additional time is required, this should be confirmed in writing with the relevant agency.

Whilst DPE were notified within the required timeframes, on one occasion during the audit period, the EPA was notified beyond the required timeframe. Notably, no adverse effects resulted, however, future occurrences of late notification should be avoided.

IMC55/14 The Company's website should be checked and updated on a regular basis, at least monthly, with all required monitoring data and reporting.

A number of reports and monitoring results were not up to date on the website as required by Schedule 5 Condition 10 of Project Approval 08_0101 and 08_0102.

IMC56/14 Consideration should be given to including a date of publication / upload for documentation uploaded to the Company website. Alternatively, another system may be implemented which records this information.

Whilst date stamping is not a conditional requirement, its use assists confirmation of compliance with conditional timeframes for publication of data and reports. It is also a useful tool for the Company in maintaining relevant and up-to-date information on the website.

IMC57/14 A breakdown of ROM coal should be provided in future Annual Reviews to enable confirmation of compliance against *Schedule 2 Condition 8* of Project Approval 08_0101 and 08_0102.

Annual reviews up to and including the 2013 period do not include a breakdown of ROM coal production which does not enable assessment of compliance. Inclusion of this detail also improves the value of the document for the Company's purposes.

IMC58/14 The management plans should be formally reviewed as required by Schedule 5 Condition 4 of Project Approval 08_0101 and 08_0102. Even where no changes are made to the management plan, these reviews should be recorded in the document control section of the management plan.

Whilst it is advised that the management plans were informally reviewed following each Annual Review and the Blast Management Plan was reviewed following the recorded incidents, this is not documented within the document control section of the plans.

IMC59/14 Future Annual Reviews should address the improvements requested by DPE and other agencies from their review of previously submitted reports (see also **Recommendations IMC49/14, IMC57/14**).

A number of improvements requested by DPE during their review of previously submitted Annual Reviews have not yet been implemented.

IMC60/14 All notifications areas for prescribed dams which overlap the IMC mining tenements should be included on mine plans and in relevant documents such as the Mining Operations Plan.

During the audit the notification areas for prescribed dams could not be readily identified, in particular for the Mt Owen Rail Loop Tailings Dam. Identification of these areas during mine planning is critical to ensure that mining does not occur within these areas without the necessary approvals.

IMC61/14 It should be confirmed through survey whether the boundary of Tailings Dam 2 remains within the Project Approval boundary as shown in Project Approval 08_0101 and 08_0102. Should the tailings dam cross the boundary, consideration should be given to seeking a modification to provide for the existing extent as well as any activities required for the final rehabilitation of the tailings dam.

The eastern extent of the existing Tailings Dam 2 appears to be outside of the Project Approval boundary. It is noted that figures within the Project Approval itself show the Project Approval boundary crossing through the tailings dam. Additionally, the tailings dam remains fully within the land parcels listed in the Project Approval and within the boundaries of the issued mining tenements. Whilst there may not be a legal issue, it is in the Company's interests to remove any doubt.