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Summary

Potential environmental issues requiring management and monitoring have been identified during the environmental impact assessment process. This Draft Environmental Management Plan (EMP) integrates the environmental management commitments made throughout the EIS. The EMP relates to the construction and operational phases of the Queensland Coke and Power Plant Project (the Project) and will be used as the basis for preparation of the final EMPs prior to commencement of these phases. The EMP will be a dynamic document that will be amended as necessary, including incorporating conditions imposed as part of any relevant environmental authorities, licences or permits under environmental legislation.

The purpose of the EMP is to identify potential environmental issues and mitigation measures together with corrective actions if an undesirable impact or unforeseen level of impact occurs. Performance against the EMP will be assessed by way of regular environmental audits during construction and operations. Performance against licence/authority/permit conditions will be audited upon the receipt of monitoring results.

The project Environmental Representatives will be responsible for the day-to-day implementation of the EMP. The Environmental Representatives will be responsible for ensuring that all principal contractors prepare and implement construction phase EMPs based on the strategic management plans outlined in this EIS. During construction, the Environmental Representatives will prepare regular reports detailing performance against the EMP and provide them to the Site Managers and project management teams. The progress of all environmental activities will be detailed and the results of inspections and monitoring presented. The reports will also detail any corrective actions that are required and report on the results of those that have been implemented. During operations, the Environmental Representatives will be responsible for the overall implementation of the operational phase EMP. The Environmental Representatives will prepare a monthly management report detailing performance against the EMP. Reporting to regulatory authorities will be conducted as required by development licences and permits.

The EMPs will be reviewed and periodically updated, if necessary, to reflect knowledge gained during the detailed design process, construction and the course of operations. Changes to the EMP will be implemented in consultation with the relevant authorities where necessary.

16.1 Introduction

Potential environmental issues requiring management and monitoring have been identified during the environmental impact assessment process. This draft EMP integrates the environmental performance commitments made throughout the EIS and describes the management framework to ensure they are met.

The guidelines provided in the Terms of Reference (ToR) have been used as a basis for the preparation of the EMP. This EMP relates to the construction and operational phases of the Project, and will be used as the basis for preparation of the final EMPs prior to the construction and operations phases. Ultimately there will be separate development approvals for the Coke Plant, the Power Plant and the Fisherman's

Landing components of the Project which will address the construction, operational and decommissioning phases of each. The EMPs will be dynamic documents that will be amended as necessary.

16.1.1 Legislation

Environmental requirements of all relevant legislation will be addressed in the final EMP, in addition to the requirements of local government, the community and other stakeholders. The Project will require development permits issued by the relevant local government agencies for the construction and operation of the facilities. Permits will incorporate environmental authority conditions required by the Environmental Protection Agency (EPA). Development permit conditions will require the proponents to address a number of environmental issues such as water quality, air quality, noise and waste management. Contingency planning will be incorporated into the EMP. Following the issue of authorities, licences and/or permits under relevant environmental legislation, the EMP will be amended to incorporate the environmental conditions imposed as part of such approvals.

16.1.2 Performance

Performance against the EMP will be assessed by way of regular environmental audits during construction and operations. Auditing will be conducted internally and by external auditors. Performance against licence/authority/permit conditions will also be audited internally by the proponents upon the receipt of monitoring results.

16.1.3 Responsibility

The proponents will be responsible for the implementation of the respective final EMPs at the corporate level. The project management teams will have overall responsibility for ensuring that all environmental commitments are properly fulfilled during both construction and operation.

The project Environmental Representatives will be responsible for the day-to-day implementation of the EMP and will report on the implementation and performance of the EMP to the Site Managers. The project Environmental Representatives will be responsible for ensuring that all principal contractors prepare and implement construction phase EMPs based on the draft management plans outlined in this section.

During operations, the project Environmental Representatives will be responsible for the overall implementation of the operational phase EMP. The project Environmental Representatives will be supported in this role by the superintendents, process supervisors and shift supervisors, who will all be responsible for health, safety and environmental performance.

16.1.4 Reporting

During construction, the project Environmental Representatives will prepare regular reports detailing performance against the EMPs and provide them to the Site Managers and project management teams. The progress of all environmental activities will be detailed and the results of inspections and monitoring

presented. The reports will also detail any corrective actions that are required and report on the results of those that have been implemented.

During operations, the project Environmental Representatives will prepare monthly management reports detailing performance against the EMP. Reporting to regulatory authorities will be conducted as required by the respective development permits.

16.2 Draft Environmental Management Plan

16.2.1 Purpose and Objectives

The purpose of the following draft EMP is to identify potential environmental issues and mitigation measures together with corrective actions if an undesirable impact or unforeseen level of impact occurs. The objectives of the EMP are to:

- Provide evidence of practical and achievable plans for the management of the Project to ensure that environmental requirements are complied with;
- Provide Local, State and Commonwealth authorities and the proponents with a framework to confirm compliance with their policies and requirements; and
- Provide the community with evidence of the management of the Project in an environmentally acceptable manner.

The finalised EMPs will be reviewed and periodically updated, if necessary, to reflect knowledge gained during the detailed design process, construction and the course of operations. Changes to the EMPs will be implemented in consultation with the relevant authorities where necessary.

16.2.2 Components

Each of the management plans in the following sections has been prepared based on the recommended structure provided in the ToR for the EIS. The appropriate time to prepare the detailed EMP is during the detailed design stage, when more accurate information is available to detail the specifics of the proposed management procedures. It is likely that the management plans below will be incorporated into an Environmental Management System.

16.3 Road Use Management Plan

The road use management plan that will be adopted is provided in Table 16.3.1.

Table 16.3.1 Road Use Management Plan

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| Policy | To minimise any impacts associated with traffic generated by the Project and transportation and handling of materials. |
| Performance Criteria | To minimise traffic-related complaints and incidents. To ensure safe operation of vehicles on-site and off-site. |
| Implementation Strategy | <ul style="list-style-type: none"> • All heavy vehicles travelling to and from the site will follow specified routes to avoid built-up areas where possible. • Use of carpooling and bus services will be implemented where possible to reduce vehicle numbers. • Where possible, truck deliveries will be restricted to daytime working hours. • Dangerous goods will be transported in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail and in accordance with the requirements of the Queensland <i>Transport Operations (Road Use Management – Dangerous Goods) Regulation 1998</i> and the <i>Transport Infrastructure Act 1994</i>. • If possible, during the construction phase the transportation of any oversized loads will be restricted to non-peak periods to avoid traffic disruptions and will be provided with appropriate escorts and approvals from both the Department of Main Roads and the Police. • The transport of heavy equipment loads will be in accordance with a Road Transport Plan developed in conjunction with the Department of Main Roads. • Clear traffic signs and signals will be installed on-site to provide for safe traffic movement. • The site speed limit will be 30 km/h. |
| Monitoring | The project Environmental Representatives will monitor the number of incidents or complaints received in relation to project traffic. Site speed limits will be enforced by the principal contractors through site security. |
| Auditing | Annual auditing of monitoring results against any relevant approval conditions. |
| Reporting | The occurrence of any traffic incidents or complaints will be recorded within site safety and environmental management systems and reported to the Site Managers for corrective action. |
| Corrective Action | The following would constitute an incident or failure to comply in regards to traffic management: <ul style="list-style-type: none"> • Not following specified routes; • Personnel not observing site traffic regulations, e.g. speed regulations; • A traffic accident involving a project vehicle; • Transportation of oversized loads at times and in a manner not specified in the agreed Road Transport Plan with the Department of Main Roads; • Necessary approvals for traffic-related activities not obtained from relevant bodies e.g. Department of Main Roads and local councils; • Non-compliance with the requirements of the Queensland Road Rules (<i>Transport Operations (Road Use Management—Road Rules) Regulation 1999</i>) or the Australian |

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| | <p>Code for the Transport of Dangerous Goods by Road and Rail if relevant.</p> <p>In the event of a complaint, an incident or failure to comply with requirements, relevant corrective action will be taken which could include the following:</p> <ul style="list-style-type: none"> • Traffic patterns will be investigated and traffic will be rescheduled or re-routed if possible; • Repeatedly offending personnel will be identified and educated in the desired mode of operation for the vehicle; • Appropriate approvals will be sought from relevant authorities where this was not done previously; and • Issues of non-compliance will be rectified. |
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16.4 Air Quality Management Plan

The air quality management plan that will be adopted for the construction phase to manage potential air and greenhouse gas emissions is provided in Table 16.4.1.

Table 16.4.1 Air Quality Management Plan – Construction Phase

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| Policy | <p>To prevent the release of fugitive emissions from areas where construction activities are occurring from causing an environmental nuisance.</p> <p>Minimise greenhouse gas emissions during construction phases.</p> |
| Performance Criteria | <p>The release of fugitive emissions from the Project (such as odour, dust, smoke and fumes) will not cause an environmental nuisance at any sensitive or commercial place.</p> |
| Implementation Strategy | <p>The following strategies will be implemented during the construction phase of the Project:</p> <ul style="list-style-type: none"> • No open burning of wastes to be undertaken on site without approval (e.g. permits to burn); • Rescheduling vegetation clearing activities or earthworks during periods of high wind if the activities have the potential to create nuisance at nearby sensitive receptors; • Applying controls in the form of watering, wind barriers and vehicle speed restrictions when there is potential to create nuisance dust; • Roads will be appropriately surfaced as soon as practicable after the commencement of site activities; • Avoiding spillages of potentially dust generating materials and ensuring prompt cleanup; • Covering haul vehicle loads containing dusty materials when outside of the construction site; • Revegetating disturbed areas as soon as possible; and • All measures, plant and equipment will be installed, maintained and operated to comply with environmental limits for air emissions. • Energy efficiency and low GHG emissions will be considered at all stages of equipment selection and construction; • An external consultant will be retained to verify that high-efficiency, low-GHG emitting construction equipment is selected; • Supply options to use bio-diesel or other low GHG emission fuel mixes for all construction vehicles will be evaluated <p>Regular watering of exposed construction areas subject to vehicle and machinery movements will be undertaken at a frequency and rate which will reduce dust generation</p> |

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| | <p>while preventing runoff. Any exposed ground surfaces determined to be not required for construction activities will be revegetated as soon as possible.</p> <p>Soil stockpiles which are creating nuisance dust will be watered, or stabilised by an appropriate surface cover where necessary.</p> <p>Vehicle speeds on site will be limited to 30 km/h to control the generation of dust on unsealed roads and exposed surfaces.</p> |
| Monitoring | <p>Regular visual inspections will be undertaken by the project Environmental Representatives for evidence of excessive dust generation.</p> <p>If nuisance emissions are encountered, monitoring near sensitive receptors close to high activity areas will be undertaken using approved ambient monitoring techniques to determine the effectiveness of control measures.</p> |
| Auditing | <p>Six-monthly auditing of monitoring results against any relevant approval conditions.</p> |
| Reporting | <p>If a monitoring program is initiated, reports will be prepared by the project Environmental Representatives documenting and assessing the significance of the results and recommending appropriate corrective actions. A copy of these reports will be submitted within a reasonable and practicable timeframe to the EPA.</p> <p>All complaints will be recorded in an incident/complaint register by the project Environmental Representatives and shall be dealt with in accordance with the provisions of the Incidents and Complaints Management Plan.</p> |
| Corrective Action | <p>The following would constitute an incident or failure to comply in regards to air quality management:</p> <ul style="list-style-type: none"> • Receipt of a fugitive emissions or dust complaint (which is neither frivolous or vexatious nor based on mistaken belief in the opinion of the Administering Authority) of environmental nuisance at any nearby sensitive receptor; • Observation of excessive dust or fugitive emission levels generated by the Project through on-site activities; and • Non-selection of high-efficiency, low-GHG emitting equipment. <p>The project Environmental Representatives will investigate all complaints and where a breach of development permit conditions has occurred and environmental nuisance has been created, will implement the following actions so that emissions from the project activities do not result in further environmental nuisance:</p> <ul style="list-style-type: none"> • Request that the contractor assess site operations to determine the source of the emissions and identify any significant modifications to activities and processes that can be made to reduce emissions. • During strong wind events and dry periods, the project Environmental Representatives may consider it necessary to request dust generating activities cease until meteorological conditions change or additional control measures are implemented. Approval to recommence operations will be required from the project Environmental Representatives. • Implement an emissions monitoring program. • Advise the complainant of the corrective action and subsequent results. |

The air quality management plan that will be adopted for the operational phase to manage emissions from Project operations, including greenhouse gas emissions, is provided in Table 16.4.2.

Table 16.4.2 Air Quality Management Plan – Operational Phase

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| Policy | <p>To meet the relevant air quality standards for Project emissions and to prevent causing environmental nuisance at any sensitive place.</p> <p>Air emissions are to comply with the conditions of the Project’s development approval.</p> <p>To minimise greenhouse gas emissions during operational phases.</p> |
| Performance Criteria | <p>To maintain specification emission concentrations under standard operating conditions.</p> <p>To operate in accordance with development permit conditions.</p> |
| Implementation Strategy | <ul style="list-style-type: none"> • Point-source air emissions will be managed through available technology and emission controls to meet regulatory requirements. • Stack emission points within the Project will be provided with monitoring ports where necessary. • No open burning of wastes to be undertaken on site without approval (e.g. permits to burn). • Spillages of coal and coke material will be avoided and prompt cleanup of this material will occur. • Appropriate control strategies such as wind barriers and sprays will be used in areas where there is the potential to generate nuisance air emissions (e.g. coal and coke handling equipment, coke screening and sizing facility). • All measures, plant and equipment will be installed, maintained and operated to minimise air emissions. • Energy efficiency and low GHG emissions will be considered at all stages of the detailed design; • An external consultant will be retained to verify that high-efficiency, low-GHG emitting equipment is selected; • Supply options to use bio-diesel or other low GHG emission fuel mixes for all vehicles will be evaluated |
| Monitoring | <p>A monitoring plan will be developed during the environmental licensing of the Project It is envisaged that the plan will address:</p> <ul style="list-style-type: none"> • Obtaining representative meteorological data; • Ambient contaminant monitoring; • Stack emission monitoring; • Observation of fugitive emissions from materials handling activities; • Monitoring to be conducted following the receipt of any complaints (which are found to be neither vexatious or frivolous nor based on mistaken belief); and • The submission of monitoring reports to the EPA as required within a reasonable and practicable timeframe. <p>Stack testing will be undertaken during the initial operation of the Project to confirm the estimated levels of emissions following significant plant extensions or modifications that could affect emission levels, and as required by any conditions of the development permit.</p> |
| Auditing | <p>Six-monthly auditing of monitoring results against any relevant approval conditions.</p> |
| Reporting | <p>Records of monitoring results will be kept and evaluated by the project Environmental Representatives and reported to the Site Managers on a regular basis.</p> |

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| | <p>Significant air quality issues will be reported to the EPA in accordance with the requirements of the site's development authority.</p> <p>All complaints will be recorded in an incident/complaint register by the project Environmental Representatives and shall be dealt with in accordance with the provisions of the Incidents and Complaints Management Plan.</p> |
| Corrective Action | <p>The following would constitute an incident or failure to comply with regards to air quality management:</p> <ul style="list-style-type: none"> • Emission concentrations exceed development permit levels; • Receipt of an air quality complaint (which is neither frivolous or vexatious nor based on mistaken belief in the opinion of the Administering Authority) of environmental nuisance at any nearby sensitive receptor; • A report of excessive dust or fugitive emission levels generated by the Project through on-site activities; • Non-selection of high-efficiency, low-GHG emitting equipment; or • Dust creating a health and safety issue on site. <p>The project Environmental Representatives will investigate all complaints and possible breaches of permit conditions, and where environmental nuisance has been created, will assess site operations to determine the source of the emissions, and identify any modifications to activities, processes and control devices that can be made to rectify the problem, as appropriate.</p> |

16.5 Noise Management Plan

The noise management plan that will be adopted for the construction phase to manage potential noise emissions from the project site is provided in Table 16.5.1.

Table 16.5.1 Noise Management Plan – Construction Phase

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| Policy | To minimise excessive noise emissions from Project construction activities and ensure noise from the Project does not cause environmental nuisance at any sensitive place. |
| Performance Criteria | <p>Construction activities which are likely to generate noise that could adversely affect any nearby sensitive receptors will be limited to between 6 am and 6 pm Monday to Saturday, where possible.</p> <p>The Project will operate in accordance with development permit conditions and the <i>Environmental Protection (Noise) Policy 1997</i>.</p> |
| Implementation Strategy | <p>The following strategies will be implemented during the construction phase of the Project:</p> <ul style="list-style-type: none"> • Best available work practices will be employed on-site to minimise occupational noise levels; • All construction equipment will be regularly inspected and maintained in good working condition; • High-efficiency mufflers will be fitted onto construction equipment where appropriate; • Construction working hours will be kept to the scheduled working hours as much as possible. If the construction schedule requires after hours work, noise levels will comply with any development permit conditions for after hours noise; and • Plant equipment tests and other elevated noise events will be performed during daytime working hours where possible. |
| Monitoring | An appropriately designed monitoring program will be implemented within a reasonable and practicable timeframe following the receipt of any noise nuisance complaints (which are found to be neither vexatious nor frivolous nor based on mistaken belief). |

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| | Monitoring will be conducted in accordance with the latest edition of the EPA’s “Noise Measurement Manual” (2000) and Australian Standard 1055.1 “Acoustics - Description and Measurement of Environmental Noise” (1997). |
| Auditing | Six-monthly auditing of any monitoring results against any relevant approval conditions. |
| Reporting | All complaints will be recorded in an incident/complaint register by the project Environmental Representatives and shall be dealt with in accordance with the provisions of the Incidents and Complaints Management Plan. This information will also be reported to the Site Managers. Significant noise performance information will be reported to the EPA in accordance with the requirements of the Project’s development permit. |
| Corrective Action | The following would constitute an incident or failure to comply: <ul style="list-style-type: none"> • Receipt of a noise complaint (which is neither frivolous or vexatious nor based on mistaken belief in the opinion of the Administering Authority) of environmental nuisance at any nearby sensitive receptor; or • Non-compliance with conditions of the development permit. The project Environmental Representatives will investigate all complaints and where a breach of development permit conditions and environmental nuisance has been created, will implement the following actions so that noise from the project activities do not result in further environmental nuisance: <ul style="list-style-type: none"> • Construction activities will be investigated to determine the source of the nuisance noise; • Current procedures and control measures will be reviewed to prevent recurrences and, where necessary, additional control and mitigation measures will be investigated and installed; • Implement noise monitoring program where appropriate; and • Advise the complainant of the corrective action and subsequent results. |

The noise management plan that will be adopted during the operational phase to manage potential noise emissions from the Project is provided in Table 16.5.2

Table 16.5.2 Noise Management Plan – Operational Phase

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| Policy | To prevent operational noise emissions from causing environmental nuisance at any sensitive receptor and comply with the development permit conditions. |
| Performance Criteria | The Project will operate in accordance with the development permit conditions and the <i>Environmental Protection (Noise) Policy 1997</i> . |
| Implementation Strategy | <ul style="list-style-type: none"> • During the detailed design phase, project noise limits will be based on Workplace Health and Safety and environmental obligations and contractors will be required to design, procure and construct plants that comply with these limits. • Once the Project becomes operational, a review of noise emissions will be carried out to determine the effectiveness of noise control measures and compliance with the development permit conditions. • Materials handling equipment will be fitted with appropriate muffler systems and regularly maintained. • Designs for compressors and blowers will incorporate proprietary acoustic enclosures where appropriate. • Best available work practices will be employed on-site to minimise occupational noise levels. |

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| Monitoring | <p>Once the Project becomes operational, or following any significant plant modifications that could affect noise levels, an ambient noise monitoring program will be undertaken at the existing noise monitoring sites to validate model predictions and compliance with development permit conditions.</p> <p>An appropriately designed monitoring program will be implemented within a reasonable and practicable timeframe following the receipt of any noise nuisance complaints (which are found to be neither vexatious or frivolous nor based on mistaken belief)</p> <p>Monitoring will be conducted in accordance with the latest edition of the EPA's "Noise Measurement Manual" (2000) and Australian Standard 1055.1 "Acoustics - Description and Measurement of Environmental Noise" (1997).</p> |
| Auditing | <p>Annual auditing of any monitoring results against any relevant approval conditions.</p> |
| Reporting | <p>The project Environmental Representatives will keep records of studies on noise levels within the site and surrounding area, including any information on the noise levels emitted from individual items of plant and equipment.</p> <p>The project Environmental Representatives will also record all complaints relating to noise, the results of investigations into these matters and actions taken to resolve them in an incident/complaint register. This information will also be reported to the Site Managers.</p> <p>Significant noise performance information will be reported to the EPA in accordance with the requirements of the development permit conditions.</p> |
| Corrective Action | <p>The following would represent an incident or failure to comply:</p> <ul style="list-style-type: none"> • Receipt of a noise complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the Administering Authority) resulting in environmental nuisance at any nearby sensitive receptor; or • Non-compliance with conditions of the development permit. <p>The project Environmental Representatives will investigate all complaints and where a breach of development permit conditions and environmental nuisance has been created, will implement the following actions so that noise from the project activities do not result in further environmental nuisance:</p> <ul style="list-style-type: none"> • Operational activities will be investigated to determine the source of the nuisance noise; • Current procedures and control measures will be reviewed and, where necessary, additional control and mitigation measures will be investigated and implemented; • A noise monitoring program will be considered; and • Complainants will be advised of the corrective action and subsequent results. |

16.6 Soil and Groundwater Management Plan

The soil contamination management plan that will be adopted to manage potential soil contamination at the site is provided in Table 16.6.1.

Table 16.6.1 Soil Contamination Management Plan

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| Policy | <p>To manage potentially contaminated soil on site and prevent any new incidents of soil contamination during the construction and operations stages of the Project, and minimise impacts on sensitive receptors.</p> |
| Performance Criteria | <p>No new contamination of soil. Elimination or containment of previously contaminated soil at the project site.</p> |
| Implementation Strategy | <p>Land resources can be affected by contamination which may potentially arise from any of the following:</p> |

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| | <ul style="list-style-type: none"> • Spillage or leakage of hazardous materials; and/or • Disposal of general waste from project operations. <p>Strategies for the prevention of potential land contamination will include:</p> <ul style="list-style-type: none"> • Construction of appropriate spill containment facilities for all chemicals and fuel storage areas (in accordance with AS1940 and AS3780); • Establishing and maintaining a Hazardous Materials Register detailing the location and quantities of hazardous substances including their storage, use and disposal; • Training of relevant personnel and implementation of safe work practices for minimising the risk of spillage; • Training of relevant personnel will include spill management and clean up procedures; and • Induction of employees, suppliers and contractors in their environmental protection responsibilities. <p>Once an area of contamination has been reported (either new or existing), the cause will be identified and the area of contamination contained. The impact may be contained by isolating the source or if required implementing controls around the impacted site.</p> <p>Remediation of newly or previously contaminated land will be undertaken using the most appropriate available method to achieve required commercial/industrial guideline validation results. Validation sampling of any remediated area will be undertaken to establish the site as "clean" as per the relevant EPA Contaminated Land (Queensland Department of Environment, 1998) and NEPC Guidelines (1999).</p> <p>The project site will be registered/updated on the Environmental Management Register.</p> |
| <p>Monitoring</p> | <p>Monthly visual inspection of the integrity of all bunded areas, all waste, chemical and fuel storage areas and hardstand/pavement.</p> <p>Monitoring of earthworks in areas identified in the EIS as potentially being contaminated.</p> |
| <p>Auditing</p> | <p>Annual auditing of contaminated land management practices against any relevant approval conditions.</p> |
| <p>Reporting</p> | <p>The project Environmental Representatives will keep records of monthly visual inspections of the bunded areas, all waste, chemical and fuel storage areas and hardstand/pavement.</p> <p>The project Environmental Representatives will maintain records of any contamination incidents or discovery of historically contaminated soil.</p> |
| <p>Corrective Action</p> | <p>The following is to be classified as an incident or failure to comply in relation to soil contamination management:</p> <ul style="list-style-type: none"> • Breach in integrity of hardstand, pavement, bunds or drains; and • Spilled chemicals, fuels or liquid wastes that enter the soil profile or the clean water drainage system. <p>Should an incident or failure to comply occur in relation to soil contamination management, the following corrective actions will be considered:</p> <ul style="list-style-type: none"> • Contain the spill using appropriate methods as per Australian Standards and best practice; • Remediate the area and dispose of contaminated material/contaminants in an approved manner; and • Repair hardstand, pavement or bunds. <p>Where historically contaminated soil is identified, the area will be managed in a manner which prevents further contamination of the area and involve remediation where appropriate.</p> |

The groundwater contamination management plan that will be adopted to manage potential groundwater impacts from the site is provided in Table 16.6.2.

Table 16.6.2 Groundwater Management Plan

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| Policy | To protect the integrity of any existing groundwater resources. |
| Performance Criteria | Groundwater quality will not be impacted by activities related to the operation of the Project. |
| Implementation Strategy | <p>During the construction phase, in the unlikely event that dewatering of foundation excavations is required, the extracted water will be used for dust suppression or disposed of in a manner which does not adversely impact the existing environmental values of the area.</p> <p>Waste, chemical and fuel storage areas will be located on hardstand/pavement and bunded to prevent the seepage of any contaminants into the groundwater system.</p> <p>Process areas, chemical and fuel storage, refuelling and washdown areas will be paved, bunded and fitted with oil-water separators, where necessary, to reduce the risk of impact on groundwater.</p> <p>The settlement/evaporation pond system will be lined with suitable low permeability material to prevent seepage of solutes or contaminants into underlying aquifers.</p> <p>A network of monitoring bores will be installed to monitor potential groundwater impacts by the Project.</p> |
| Monitoring | <p>The integrity of slabs and bunded areas will be visually inspected on a monthly basis to ensure that there are no major cracks or seepage paths.</p> <p>The key indicator parameters of seepage that will be monitored in the network of bores will include standing water level, salinity (as electrical conductivity), sulphate, chloride, dissolved metals, and major ions.</p> |
| Auditing | Annual auditing of monitoring results against any relevant approval conditions. |
| Reporting | Monitoring results will be recorded and evaluated by the project Environmental Representatives and retained on site. |
| Corrective Action | <p>Any major cracking or seepage paths of slabs and bunded areas will be repaired in a timely manner.</p> <p>Should monitoring indicate possible sources of seepage to groundwater, appropriate remedial action will be undertaken and additional control measures implemented.</p> |

16.7 Surface Water and Erosion Management Plan

The surface water and erosion management plan that will be adopted during the construction phase of the Project to manage potential surface water impacts is provided in Table 16.7.1.

Table 16.7.1 Surface Water and Erosion Management Plan – Construction Phase

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| Policy | Manage erosion and the discharge of contaminated surface water generated from construction activities to prevent environmental harm of the surrounding environment. |
| Performance Criteria | <p>To prevent the direct release of contaminants resulting from construction operations to surface waters.</p> <p>To minimise incidences of accelerated erosion as a result of construction activities.</p> <p>Compliance with the development permit conditions.</p> |
| Implementation Strategies | Provide bunded storage areas for fuels, chemicals and dangerous goods required for construction equipment with spill cleanup kits in accordance with the requirements of AS1940 and AS3780. |

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| | <p>Implement controls to ensure all transfers of fuels and chemicals are managed to prevent spillage outside bunded areas.</p> <p>Design and implement contractor and employee training programs specific to surface water and erosion management.</p> <p>Principal contractors to prepare and implement a site-specific construction erosion and sediment control plan in accordance with the “Erosion and Sediment Control Guidelines” (Institution of Engineers Australia, 1996).</p> <p>An assessment of existing water management structures on-site will be conducted to ascertain the degree to which the structures already adhere to the following procedures for the construction and maintenance of sediment control and the practicability of upgrading existing structures to meet these conditions:</p> <ul style="list-style-type: none"> • Sediment traps will preferably be excavated below the natural ground surface. Where it is necessary to construct embankments to form a sediment trap, embankments will be adequately compacted with batter slopes commensurate with the available materials. • Sediment traps will include a high flow 'spillway' outlet to safely pass floods without breaching the basin. Spillways will be sized for 10-year Average Recurrence Interval events. • Sediment traps will include adequate access provisions for regular monitoring and maintenance to clean out captured sediments. • Subject to constraints of available space and topography, sediment traps will be designed and constructed in accordance with the “Erosion and Sediment Control Guidelines” (Institution of Engineers Australia, 1996). • Sediment traps will be sized with sufficient sediment storage capacity to match the combination of the rate of sediment 'supply' and planned frequency of sediment removal from the basin. <p>Clean water diversion drains will be installed to divert clean stormwater flow from undisturbed areas away from the sediment traps. Diversion drains will also be installed as necessary to direct sediment-laden stormwater flow to the sediment traps.</p> <p>Measures to be taken to minimise the impact of erosion and sediment movement will include the following:</p> <ul style="list-style-type: none"> • Limit the disturbance of vegetation in construction areas to a practical minimum. • Clear vegetation progressively, immediately prior to the commencement of construction activities. • Safeguard the surface layer by stripping and stockpiling useable topsoil prior to construction in areas outside of drainage lines and protected from erosion. • Stockpiles must be covered, revegetated and/or wind-rowed. • Use temporary soil diversion mounds to control runoff within and divert water away from the construction site. • Minimise the period that bare soil is left exposed to erosion. • Use sediment traps/silt fences etc, to minimise off-site effects of erosion. • Provide rapid-growing vegetation cover for exposed areas including erosion control matting where required. • Reuse stored topsoil in revegetation and landscaping activities. |
| Monitoring | <p>The construction managers shall conduct regular inspections of construction areas and assess the condition and operability of site drains and erosion mitigation measures as well as for the presence of contaminants in sedimentation dams. Inspections shall be conducted on a weekly basis during the wet season, as well as immediately after each significant rainfall event.</p> |
| Auditing | <p>Annual auditing of soil erosion and sediment control strategies against any relevant approval conditions.</p> |

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| Reporting | <p>The construction managers will report monthly to the project Environmental Representatives on the following:</p> <ul style="list-style-type: none"> • Compliance with approved erosion and sediment control plan; • Incidents of erosion or surface water contamination; • Results of weekly inspections; and • Results of any corrective actions. |
| Corrective Actions | <p>The following is to be classified as an incident or failure to comply in relation to surface water and erosion management:</p> <ul style="list-style-type: none"> • Breach in integrity of ponds, bunds, pipes or drains which results in a breach of the development permit conditions; • Settlement/evaporation ponds demonstrating significantly reduced available volume/freeboard and not in compliance with design standards; • Insufficient general housekeeping to prevent general rubbish and contaminants entering the stormwater system; • Uncontrolled and unauthorised discharge of contaminated water into the surrounding environment; • Breach of development permit conditions; or • Receipt of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the Administering Authority) of environmental harm caused by the release of stormwater from the project site. <p>Should an incident or failure to comply occur in relation to surface water and erosion management, the following corrective actions will be implemented:</p> <ul style="list-style-type: none"> • Repair site surface water controls (e.g. ponds, bunds and drains); • Contain and remediate or dispose of contaminated material/contaminants; • Treat or dispose of contaminated surface water; • Clean out the settlement/evaporation ponds; • Undertake additional general housekeeping to minimise rubbish and contaminants entering the surface water; • Review the erosion and sediment control plan; • Review site procedures and where necessary update these procedures; • Implement retraining of site contractors and employees on surface water and erosion management requirements; • Investigate complaints in accordance with the Incidents and Complaints Management Plan. |

The surface water and erosion management plan that will be adopted for the operational phase to minimise potential surface water contamination is provided in Table 16.7.2.

Table 16.7.2 Surface Water and Erosion Management Plan – Operational Phase

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| Policy | Manage erosion and the discharge of contaminated surface water generated from operational activities to prevent environmental harm of the surrounding environment. |
| Performance Criteria | To prevent the direct release of contaminants resulting from Project operations to surface waters. Compliance with the development permit conditions. |

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| <p>Implementation Strategy</p> | <p>The stormwater system will aim to intercept and redirect runoff away from potential contaminant sources and erosion-prone areas.</p> <p>Relatively clean runoff from undeveloped areas will be separated from potentially contaminated runoff as much as practicable.</p> <p>All chemicals, fuels, oils and liquid wastes will be stored, bunded, handled, transported and disposed of in accordance with relevant legislation and manufacturer instructions to minimise the risk of spillage.</p> <p>An Emergency Response Plan (ERP) will be prepared and implemented to address:</p> <ul style="list-style-type: none"> • Identifying potential incidents; • Actions to be taken by people at different organisational levels upon discovery of a spill; • Use of spill response equipment (e.g. spill cleanup kits); • Reporting of incidents and notification of authorities; and • Workplace health and safety. <p>Training will be provided to all personnel on a periodic basis, addressing the measures outlined in the ERP, the surface water management plan and the prevention of environmental impacts to surface waters.</p> <p>Spill cleanup kits will be provided and maintained in strategic locations on-site and appropriate training of personnel provided.</p> <p>Refuse bins will be located in strategic locations on site.</p> <p>The stormwater system will divide the site into the following categories to allow management according to the risks present:</p> <ul style="list-style-type: none"> • <i>Process Areas</i> - All process areas will be bunded or will have sloping floors towards drains. Runoff from process areas will drain to site dams for evaporation or re-use. Waste water from washdown areas will be directed through appropriate separations systems and the treated water directed to settlement/evaporation ponds for re-use. Separated residue from the treatment system will be collected and periodically removed off site by licensed waste collection and transport contractors to a licensed recycling/disposal facility. • <i>Chemical and Fuel Storage Areas</i> - All chemical and fuel/oil storage areas will be bunded and fitted with closed isolation valves on the outlet drains from these bunded areas. Any rainfall collected in the bunded areas will be drained to evaporation ponds. Any contaminants or major spillages of stored material in the bunded areas will be collected by licensed waste collection and transport contractors for disposal off-site at a licensed facility. • <i>General Coke Plant and Power Plant Areas</i> - All stormwater from the Coke Plant will drain into the settlement/evaporation ponds for re-use or discharging to Quarry Creek. All stormwater from the Power Plant will drain into the Power Plant settlement/evaporation ponds. • <i>Coal and Coke Stockpiles</i> - All stormwater contacting the stockpile areas will be isolated from 'clean' water by siting the stockpiles and on hardstand with drainage channels around these areas. The contaminated water drainage channels will flow into a series of settlement/ evaporation ponds. • <i>Other 'Clean' Areas</i>- All undisturbed/rehabilitated areas will have established groundcover to minimise sources of sediment. Groundcover will use endemic species to avoid the need for fertiliser application and associated risks from excess nutrients in stormwater runoff. Where formal drainage is required, drainage will be via shallow grassed/revegetated swales. • <i>Sewage</i> - Sewage will be treated within the existing Stanwell Power Station sewerage system or via site-specific treatment options. Sewage effluent will be discharged to associated evaporation ponds. Any sewage effluent re-used on site will not exceed limits nominated in the development permit and will be used in a manner which does |
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| | <p>not create spray drift or over spray to any sensitive place.</p> <ul style="list-style-type: none"> • <i>Power Plant Cooling System Blowdown</i> - Blowdown water may be collected and used for Coke Plant quenching or discharged to Quarry Creek via settlement/evaporation ponds. • <i>HRSB Steam Cycle Blowdown</i> - Steam cycle blowdown water may be collected and used for Coke Plant quenching or discharged to Quarry Creek via settlement/evaporation ponds. <p>Pond designs will comprise a range of measures, including weirs and deep water pools, to clarify inflowing water and contain and settle out sediments and contaminants. Reference will be made to the "Erosion and Sediment Control Guidelines" (Institution of Engineers Australia, 1996) when designing site storages.</p> <p>Site discharges will comply with contaminant limits nominated in the development permit conditions.</p> <p>Erosion control and energy dissipation measures such as matting, riprap and/or gabions will be installed at the overflow from the ponds to the creek system to prevent erosion or bed instability.</p> <p>The design storage allowances of site dams prior to the onset of the wet season will be evaluated in accordance with the development permit conditions to ensure sufficient capacity is available.</p> <p>As site water monitoring data are obtained, the potential consequences from containment storage overflows and stormwater management failure will be assessed. Where necessary, target overflow probability used to size containment storages will be revised.</p> |
| <p>Monitoring</p> | <p>The quality of water in the settlement and evaporation ponds will be monitored for sediment and associated particulate contaminants. A review of data will be carried out after one year of monitoring.</p> <p>Receiving waters affected by any discharges of process water or stormwater from the Project will be monitored at the locations and frequencies nominated in the development permit conditions.</p> <p>All monitoring will be undertaken in accordance with the requirements of the Project's development permit conditions.</p> <p>The effectiveness of the Project's stormwater management system will be regularly assessed and the appropriate changes made to ensure no uncontrolled discharges off site occur.</p> <p>On-going seepage monitoring and management will be carried out for all new and existing evaporation ponds.</p> |
| <p>Auditing</p> | <p>Annual auditing of monitoring results and the effectiveness of the site water management system against any relevant approval conditions.</p> |
| <p>Reporting</p> | <p>Environmental performance and the results of all environmental monitoring will be recorded and evaluated by the project Environmental Representatives and reported to the EPA in accordance with the site's development permit conditions.</p> |
| <p>Corrective Actions</p> | <p>The following will be classified as an incident or failure to comply in relation to surface water and erosion management:</p> <ul style="list-style-type: none"> • Breach in integrity of ponds, bunds, pipes or drains which results in a breach of the development permit conditions; • Overflow or unauthorised discharges from ponds or stormwater management system; • Evaporation ponds demonstrating significantly reduced available volume/freeboard; • Oil/water separators not operating as designed in removing contaminants; • Uncontrolled and unauthorised discharge of contaminated water into the surrounding environment; • Breach of development permit conditions; or |

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| | <ul style="list-style-type: none"> • Receipt of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the Administering Authority) of environmental harm caused by the release of stormwater from the project site. <p>Should an incident or failure to comply occur in relation to surface water and erosion management, the following corrective actions will be considered:</p> <ul style="list-style-type: none"> • Repair any breaches in ponds, bunds, pipes or drains; • Contain and remediate or dispose of contaminated material/contaminants; • Review site procedures and where necessary update these procedures; • Implement retraining of site contractors and employees on surface water and erosion management requirements; • Modify the operating strategies for the surface water and erosion management system; • Repair or review stormwater quality improvement devices as required; or • Investigate complaints in accordance with the Incidents and Complaints Management Plan. |
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16.8 Flora and Weed Management Plan

The flora and weed management plan that will be adopted is provided in Table 16.8.1.

Table 16.8.1 Flora and Weed Management Plan

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| Policy | To protect the local flora within and around the project site. |
| Performance Criteria | Minimise the impact of construction and operation of the Project on the local flora. |
| Implementation Strategy | <p>Minimise the area to be cleared during the construction to only that required for construction activities, with particular attention to be paid to delineating clearing areas with tape, pegs and/or other markers.</p> <p>Access for construction and operational workers to areas outside of the cleared areas will be permitted only with the prior approval of the project Environmental Representatives.</p> <p>Any clearing within, or in close proximity to, riparian vegetation will employ adequate erosion and sedimentation mitigation measures to ensure that riparian vegetation is not unduly effected.</p> <p>A buffer area of natural vegetation will be maintained around the project infrastructure where possible.</p> <p>Management measures will be adopted during the operational phase of the Project to ensure the natural values of this area are maintained.</p> <p>A landscape plan which covers all areas disturbed during construction but not covered by built structures and infrastructure will be prepared prior to commencement of the construction phase. The early implementation of the landscape plan will effectively control weed species which colonise disturbed areas following construction. The plan will involve species native to the vegetation communities present in the region and their use to the fullest extent possible.</p> <p>A weed control program will be implemented over the site as part of routine maintenance of the site grounds and facilities. The program will involve the periodic inspection of the site area and control of infestations of weeds.</p> <p>Any weed infestation will be controlled by an appropriate method (preferably by physical removal) in accordance with regional best management practice current DNRM pest control guidelines and plans (DNRM 2005b) and Fitzroy Shire Council’s Pest Management Plan (2005). Priority weeds found on the project site to be controlled will include:</p> <ul style="list-style-type: none"> • Rubbervine (cut stump/basal bark/plough/slashing, fire, foliar spray depending on level |

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| | <p>of infestation).</p> <ul style="list-style-type: none"> • <i>Harrisia Cactus</i> (dug out and burn, application of biological (longicorn beetle or mealy bug) or herbicide application). • <i>Lantana</i>, including <i>Creeping Lantana</i> (stick racking/ploughing, fire, biological control (sap-sucking bug, leaf-mining beetles or seed-feeding fly) or herbicide application). • <i>Prickly Pear</i> including <i>Gracemere</i> and <i>Common</i> (biological control (stem-boring moths, cochineal mealy bugs, cell-sucking bugs, stem-boring beetle or prickly pear red spider mite), fire, herbicide application). • <i>Parthenium</i> (herbicide application, biological control (insects or rust pathogens), or grazing management if possible). • <i>Broad-leaved Pepper Tree</i>. <p>Information will be provided to project staff on the identification and control of “declared” pests.</p> <p>The project Environmental Representatives will record weed control methods employed, extent of treatment areas, method(s) of control used, application rates for any herbicidal use, reference to appropriate control guidelines and monitoring for success of control methods.</p> <p>Stockpiles of construction materials will be clearly defined into concise areas so that weed establishment and potential spread of plant diseases may be contained. Stockpile areas will be developed in previously cleared areas where possible.</p> <p>An appropriate fire management regime will be implemented over the site and will consist of periodic (as appropriate) inspections of fuel load and moisture content in vegetated areas. Firebreaks around the project infrastructure will be regularly maintained.</p> |
| Monitoring | Regular inspection of the project area by the project Environmental Representatives to inspect for any evidence of vegetation disturbance or weed infestation and on the implementation of the fire management program. |
| Auditing | Annual auditing of weed management and flora protection against any relevant approval conditions. |
| Reporting | The project Environmental Representatives will report any incidents of disturbance or weed infestations as required by site management or the administering authority. |
| Corrective Action | <p>The following constitute an incident or failure to comply:</p> <ul style="list-style-type: none"> • Unauthorised disturbance of vegetation outside of the area cleared for the Project. • Evidence of weed infestation. • Fire management program not prepared or implemented. • Site landscape plan not prepared or implemented. <p>In the event of a failure to comply, investigations will be undertaken into the cause of the incident or failure to comply and the appropriate action taken.</p> |

16.9 Fauna Management Plan

The fauna management plan that will be adopted is provided in Table 16.9.1.

Table 16.9.1 Fauna Management Plan

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| Policy | To protect the fauna and fauna habitats in that part of the project site not required for construction or operational requirements, and in the immediate area. |
| Performance Criteria | Minimise the impact of project construction and operation on the local fauna. |
| Implementation | <ul style="list-style-type: none"> • Prior to clearing, macropods resident on the project site will be moved on, by removal of a |

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| Strategy | <p>part of the eastern fence, allowing the macropods to move away into similar habitats in the Flagstaff Hill area.</p> <ul style="list-style-type: none"> • The area to be cleared will be minimised to only that required for construction activities. • Access to areas outside of the site boundary will be prevented to avoid unauthorised disturbance to the surrounding vegetation and fauna habitats. • The timing of clearing operations will be selected, where possible, to minimise impacts on breeding species. • Hollow bearing trees will be felled in a manner which reduces potential for fauna mortality. Felled trees will be inspected after felling and fauna (if identified) will be removed and relocated or rendered assistance if injured. • Populations of vertebrate feral pests will be monitored and the appropriate control and management practices implemented. Management practices will be designed through consultation with the Fitzroy Shire Council and the DNRM. • Monitoring of selected sites along Quarry and Neerkol Creeks for changes in aquatic ecology will be undertaken in accordance with the development permit conditions throughout the operational phase of the Project. |
| Monitoring | Monthly inspection of the area surrounding the project site by the project Environmental Representatives to inspect for any evidence of habitat disturbance or feral pest presence. |
| Auditing | Annual auditing of fauna management practices and monitoring results against any relevant approval conditions. |
| Reporting | The project Environmental Representatives will report any incidents of disturbance or feral pest presence as necessary. |
| Corrective Action | <p>The following will constitute an incident or failure to comply:</p> <ul style="list-style-type: none"> • Unauthorised disturbance of habitat in the area surrounding the project infrastructure. • Evidence of the presence of feral pests in significant numbers and the lack of appropriate management practices. <p>In the event of an incident or failure to comply, investigations will be undertaken into the cause of the incident or failure to comply and the appropriate action taken to overcome the problem.</p> |

16.10 Waste Management Plan

The waste management plan that will be adopted for the construction phase of the Project is provided in Table 16.10.1

Table 16.10.1 Waste Management Plan – Construction Phase

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| Policy | To manage wastes from the construction of the project to minimise or avoid potential impacts on the environment, by incorporating waste minimisation concepts and hierarchies into site activities. |
| Performance Criteria | <p>Prevent environmental harm from waste management during the construction phase.</p> <p>Adhere to waste minimisation principles.</p> <p>Adhere to waste management hierarchy by minimising waste generation, maximising water and materials reuse and recycling and safely treating and disposing of all non-reusable and non-recyclable materials.</p> |
| Implementation Strategy | <p>A waste management plan will be developed for the construction stage by the principal construction contractors that includes the following:</p> <ul style="list-style-type: none"> • The scope and objective of the plan; • Opportunities and actions to be taken to implement the waste management hierarchy; |

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| | <ul style="list-style-type: none"> • No waste will be burnt or buried on site; • Emergency response procedures; • Training and management; and • A monitoring and reporting program. <p>Careful planning will be employed when ordering materials. Any excess materials and used chemical containers, where practical, will be returned to the supplier or local customer.</p> <p>Preference will be given to materials that will result in no or low levels of waste from both the materials and the packaging.</p> <p>Waste streams will be separated into various components at the point at which they are produced. Waste separation at source will be achieved by providing bins for re-useable and recyclable materials. For large quantities of waste, an area on-site will be allocated for the collection of materials.</p> <p>Recyclable building wastes will be collected separately and re-used or recycled:</p> <ul style="list-style-type: none"> • Scrap steel and off-cuts will be recycled; • Plastics will be recycled; and • Oils will be collected and sent for recycling. <p>Wastes that cannot be re-used or recycled will be collected by waste management contractors and disposed of at an appropriately licenced facility.</p> <p>All regulated wastes leaving the project site will be tracked in accordance with the requirements of the <i>Environmental Protection (Waste Management) Regulation 2000</i>, Schedule 2.</p> <p>All contractors and employees will be trained in waste management practices.</p> |
| Monitoring | <p>Volumes of waste being sent for reuse, recycling and disposal will be monitored.</p> <p>During the course of construction, waste and reusable and recyclable materials storage areas will be monitored to ensure areas are tidy and collection facilities are emptied on a regular basis.</p> |
| Auditing | <p>Annual auditing of waste management practices and waste volumes against any relevant approval conditions.</p> |
| Reporting | <p>During construction, the contractor's Environmental Representatives will be responsible for waste collection and waste management issues and will report to the project Environmental Representatives at monthly intervals.</p> |
| Corrective Action | <p>The following constitute incidents or failures to comply in relation to waste management procedures:</p> <ul style="list-style-type: none"> • Unnecessary volumes of waste being sent for disposal; • Wastes being disposed of rather than reused or recycled where possible; • Illegal or uncontrolled waste disposal; or • Other non-compliances with the Waste Management Plan. <p>Should an incident or failure to comply occur, the contractor's Environmental Representatives will take the necessary actions to identify the causes of non-conformance with the waste management plan performance requirements and implement actions necessary to ensure compliance.</p> <p>Staff and contractors will be retrained in waste management practices.</p> |

The waste management plan for the operational phase of the Project is provided in Table 16.10.2.

Table 16.10.2 Waste Management Plan – Operational Phase

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| Policy | To manage wastes from the operation of the Project ensure impacts on the environment are minimised or avoided by incorporating waste minimisation and cleaner production concepts in site activities. |
| Performance Criteria | Prevent environmental harm from wastes during the operational phase. Adhere to waste minimisation and cleaner production principles. |
| Implementation Strategy | <p>The key principles of cleaner production and application of the waste management hierarchy will be applied throughout the Project. These will be implemented in the following manner:</p> <ul style="list-style-type: none"> • Recycling of waste oil and scrap steel generated on the site as far as possible; • Recycling of general waste where possible; and • Maximising the recycling of plant water. <p>A waste management plan will be developed by the project Environmental Representatives prior to commencement of operations and will include:</p> <ul style="list-style-type: none"> • The scope and objective of the plan; • Environmental values to be protected; • Inputs and outputs of the process and their impact on the environmental values; • Opportunities and actions to be taken to implement the waste management hierarchy; • Action plans; • Emergency response procedures; • Training and management; and • A monitoring and reporting program. <p>Careful planning will be employed when ordering materials. Any excess materials and used chemical containers will, where practical, be returned to the supplier or a local consumer.</p> <p>Preference will be given to materials that will result in no or low levels of waste from both the materials and packaging.</p> <p>Waste streams will be separated into various components at the point at which they are produced. Waste separation at source will be achieved by providing bins for re-useable or recyclable materials. For large quantities of waste, an area on-site will be allocated for the collection of materials.</p> <p>Waste storage will occur in a secure area. Should there be a possibility that leaching from wastes onto the ground could affect either groundwater or surface water quality or soil, engineering features will be put in place to prevent this occurrence.</p> <p>Any wastes that cannot be re-used or recycled will be collected by appropriately licensed waste management contractors and disposed of at an approved landfill.</p> <p>All regulated wastes leaving the project site will be tracked in accordance with the requirements of the <i>Environmental Protection (Waste Management) Regulation 2000</i>, Schedule 2.</p> <p>All contractors and employees will be trained in waste management practices.</p> |
| Monitoring | <p>Volumes of waste being sent for reuse, recycling and disposal will be monitored regularly.</p> <p>Waste and reusable and recyclable materials storage areas will be monitored to ensure areas are tidy and collection facilities are emptied on a regular basis.</p> |
| Auditing | Annual auditing of waste management practices and waste volumes against any relevant approval conditions. |

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| Reporting | <p>The project Environmental Representatives will record the results of all waste monitoring surveys.</p> <p>The project Environmental Representatives will report on waste collection and management issues to the Site Managers as required by the Waste Management Plan.</p> |
| Corrective Action | <p>The following constitute incidents or failures to comply in relation to waste management policies:</p> <ul style="list-style-type: none"> • Unnecessary volumes of waste being sent for disposal; • Wastes being disposed of rather than reused or recycled where possible; • Disposal of waste on site by burning or burial; • Illegal or uncontrolled waste disposal; or • Other non-compliances with the waste management plan. <p>Should an incident or failure to comply occur, the project Environmental Representatives will take the necessary actions to identify the causes of non-conformance with the waste management plan and be responsible for implementing all actions necessary to ensure compliance.</p> <p>Staff and contractors will be retrained in waste management practices.</p> |

16.11 Chemical and Dangerous Goods Management Plan

The chemical and dangerous goods management plan that will be adopted during the construction and operations phases is provided in Table 16.11.1.

Table 16.11.1 Chemical and Dangerous Goods Management Plan

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| Policy | <p>To safely manage, store, handle and dispose of chemicals, fuels and dangerous goods and prevent environmental harm caused by uncontrolled releases to the environment.</p> |
| Performance Criteria | <p>Compliance with relevant Australian Standards including AS4452 “The Storage and Handling of Toxic Substances”, AS1940 “The Storage and Handling of Flammable and Combustible Liquids”, AS3780 “The Storage and Handling of Corrosive Substances”, the <i>Dangerous Goods Safety Management Act 2001</i> and Fitzroy Shire Council requirements.</p> <p>No spills of chemicals or release of chemicals to the environment.</p> <p>Implemented procedures regarding emergencies relating to chemicals, fuels and dangerous goods contained in the Site Emergency Plan and/or the Emergency Spillage Response Plan.</p> |
| Implementation Strategy | <ul style="list-style-type: none"> • Material Safety Data Sheets (MSDSs) will be kept in a register at the chemical storage areas and areas of plant using the chemicals. The MSDSs will be readily available to all staff. • Records will be kept on the existing inventory, storage location, personnel training and disposal of waste for all chemicals, fuel and dangerous goods used on site. Records will be maintained by the project Environmental Representatives. • All staff will be trained in appropriate handling, storage and containment practices for chemicals, fuel and dangerous goods as is relevant to their position. • Liquid chemicals and fuels stored in above-ground tanks and chemicals and fuels stored in drums will be banded in accordance with Australian Standards. Packaged goods will be segregated in accordance with Australian Standards. • Spills kits will be readily available and used to clean up spills immediately. Contaminated runoff and contaminated soil will be recorded, managed, collected and remediated or disposed of in an approved manner. • Where possible, hazardous chemicals and materials will be replaced with less harmful |

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| | alternatives. |
| Monitoring | Inspections of bulk and packaged chemicals containers and the integrity of bunded areas, hardstand, pavement and associated containment systems will be conducted on a monthly basis. |
| Auditing | Annual auditing of inspection results and hazardous materials management practices against any relevant approval conditions. |
| Reporting | <p>The project Environmental Representatives will record and sign off on monthly inspections of containers, bund integrity, valves and storage and handling areas.</p> <p>Spills will be reported to the project Environmental Representatives including actions taken to minimise the impacts.</p> <p>Should a significant chemical spill occur, the Site Emergency Plan and/or the Emergency Spillage Response Plan will be followed and the EPA and Fitzroy Shire Council notified as soon as possible.</p> |
| Corrective Action | <p>The following constitute an incident or failure to comply in relation to chemical, fuel and dangerous goods management:</p> <ul style="list-style-type: none"> • Significant chemical, fuel or dangerous goods spill; • Storage areas not meeting Australian Standards; • Chemicals, fuels and dangerous goods stored in areas not containing suitable bunding; • Release of chemicals, fuel or dangerous goods to the environment; and • Breach of development permit conditions. <p>Should an incident occur, the following corrective actions will be undertaken as appropriate:</p> <ul style="list-style-type: none"> • Contain and clean up spill material immediately and remediate or appropriately dispose of contaminated material; • Repair bunds, valves etc and replace containers; • Relocate chemicals to appropriately bunded or approved storage areas; • Retraining of site employees and contractors; or • Undertake a review of emergency response plans in conjunction with the EPA and the Fitzroy Shire Council to determine any items for improvement. |

16.12 Health and Safety Management Plan

The health and safety management plan that will be adopted is provided in Table 16.12.1.

Table 16.12.1 Health and Safety Management Plan

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| Policy | To ensure that the Project does not adversely affect the health or safety of the employees, contractors, workers in nearby industrial premises or the general public. |
| Performance Criteria | <p>Adhere to relevant Australian Standards and other recognised standards, applicable codes of practice and relevant statutory provisions, particularly, the <i>Workplace Health and Safety Act 1995</i>.</p> <p>Implement a safety system that will ensure the safety performance and occupational health of the Project meets industry standards.</p> |
| Implementation Strategy | <p>Develop and implement a Safety Management System that will ensure that the safety performance and occupational health of the Project meets required industry best practice standards.</p> <p>The Safety Management System will:</p> <ul style="list-style-type: none"> • Clearly identify potential health and safety hazards; |

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| | <ul style="list-style-type: none"> • Assess risks resulting from the hazards identified; • Decide on control measures that prevent, or minimise the level of the risk; • Implement corrective measures to control or remove hazards and associated risk; and • Monitor and review the effectiveness of any corrective action. <p>Contractors working on the project site through construction and operation will be required to adhere to the Safety Management System as well as develop, implement and maintain safety management plans which address specific workplace hazards that could be encountered during the contractor's work.</p> <p>During construction, the principal contractor(s) will be required to prepare a Construction Workplace Safety Plan which will apply to all construction personnel.</p> <p>Personal protective equipment and appropriate training will be provided by contractors to their staff and will be provided to operational workers depending on the type of hazard a worker may be exposed to.</p> <p>An Emergency Response Plan will be prepared which will detail steps to be taken in the event of an emergency and incident management procedures. Emergencies to be addressed in the Plan will include:</p> <ul style="list-style-type: none"> • Accident/injury; • Security breaches and terrorism; • Bush Fire; • Plant/facility Fire; • Site Evacuation; • Hydrocarbon/chemical spillage; • Gas/vapour leak; • Road Accidents; and • Natural disaster. <p>Appropriate security and site access provisions will be implemented.</p> <p>The risk prevention and management strategies outlined throughout various sections of the EIS will be implemented. These include waste and surface water management practices, regular monitoring and auditing, incident reporting, training and site communication.</p> |
| Monitoring | The Workplace Health and Safety Representatives will regularly undertake safety surveys and workplace safety checks. |
| Auditing | <p>The overall safety performance of the Project will be audited on a regular basis by safety auditors and/or the Workplace Health and Safety Representatives in conjunction with Site Management.</p> <p>External consultants or representatives may be engaged to check, audit or monitor workplace safety aspects as required.</p> |
| Reporting | The Workplace Health and Safety Representatives are responsible for enforcing all occupational and public health directives and keeping all records relating to this. Regular reporting will be provided to the Site Managers as required. |
| Corrective Action | <p>The following constitute incidents or failure to comply with health and safety procedures:</p> <ul style="list-style-type: none"> • Directives and procedures contained in the site safety system are not being followed; • Directives and procedures contained in the site safety system are not being enforced; |

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| | <ul style="list-style-type: none"> • Site safety system not encompassing all required topics and situations; • High rate of work-related injury, illness or near-misses; or • The Emergency Response Plan not being prepared or implemented. • Site security and site access system failure. <p>Following an incident or failure to comply, the following actions will be undertaken:</p> <ul style="list-style-type: none"> • Investigate why the incident occurred and implement mitigating measures; • Ensure safety information provided is adequate and current and revised regularly as appropriate; • Undertake a review of the Emergency Response Plan to determine items for improvement; • Ensure employees, contractors and visitors to the site are familiar with the procedures and policies relevant to their positions and undergo regular training; • Ensure safety directives and procedures are enforced; and • Ensure safety documents including MSDS's are readily available to everyone on the site. |
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16.13 Aboriginal Cultural Heritage Management Plan

The Aboriginal cultural heritage management plan that will be adopted is provided in Table 16.13.1.

Table 16.13.1 Aboriginal Cultural Heritage Management Plan

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| Policy | To protect the Aboriginal cultural heritage values identified on the project site. |
| Performance Criteria | Approval of a Cultural Heritage Management Plan pursuant to the <i>Aboriginal Cultural Heritage Act 2003</i> (ACHA). Compliance with all aspects of the Cultural Heritage Management Plan (CHMP). |
| Implementation Strategy | In order to effectively manage cultural heritage issues, a CHMP will be prepared pursuant to the ACHA. The plan will be developed in consultation with the Aboriginal Party for the project area. The CHMP will provide for: <ul style="list-style-type: none"> • Protection and management of Indigenous cultural heritage; • Mitigation, management and protection of identified cultural heritage places and material during construction and operation of the Project; • Prevention of access to areas containing cultural heritage sites or material, where practicable; • Management of any new discovery of cultural material, including burials; • Monitoring of earthworks activities that have the potential to harm sub-surface cultural material; • Protocols to cover the future management of cultural material collected and removed from the project area; • Modifications of management requirements as further investigations and/or mitigation is undertaken, or as project development plans change over time; • Setting clear obligations for the construction and operational workforce to provide awareness and ensure Aboriginal cultural heritage is not placed at risk, including cultural heritage training and induction programs; and • Dispute resolution processes. |

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| | All site employees and contractors will be trained in the principles of cultural heritage and the CHMP. |
| Monitoring | Implement a cultural heritage monitoring program for the construction phase. Regularly monitor the implementation of CHMP provisions on site. |
| Auditing | Annual auditing of site activities against the CHMP. |
| Reporting | Any disturbance to cultural material will be reported to the project Environmental Representatives, who in turn shall notify the Site Managers who shall ensure the incident is reported to the relevant Aboriginal Party. |
| Corrective Action | Any of the following would constitute an incident or failure to comply: <ul style="list-style-type: none"> • Failure to prepare, or obtain approval of, or implement the CHMP; • Unauthorised disturbance of any cultural sites or material; • Failure to comply with the principles of the CHMP; or • Failure to implement a cultural heritage monitoring program during the construction phase. In the event of an incident or failure to comply, appropriate actions will be undertaken as directed by the project Environmental Representatives in accordance with the CHMP and in negotiation with the Aboriginal Party. Retraining of site employees or contractors in cultural heritage management requirements. |

16.14 Incidents and Complaints Management Plan

The incidents and complaints management plan that will be adopted is provided in Table 16.14.1

Table 16.14.1 Incident and Complaints Management Plan

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| Policy | To manage incidents and complaints from the community and employees regarding project activities. |
| Performance Criteria | No or minimal numbers of incidents and complaints regarding activities at the project site. |
| Implementation Strategy | All incidents and complaints will be documented in an Incidents and Complaints Register via a complaints/incidents form. The form will document at least the following information: <ul style="list-style-type: none"> • Time, date and nature of complaint; • Type of communication (e.g. telephone, letter, visit); • Name, contact address and contact number (if provided) of complainant; • Response and investigation undertaken as a result of the complaint; • Date and nature of response to complainant; and • Action taken and signature of person investigating complaint (Environment or Workplace Health and Safety Representatives). Each complaint will be investigated as soon as practicable and in line with the requirements of the Project's development permit. |
| Monitoring | The project Environmental Representatives or the Workplace Health and Safety Representatives will maintain the Incidents and Complaints Register and ensure all incidents and complaints are resolved. The Incidents and Complaints Register will be reviewed by the project Environmental Representatives or the Workplace Health and Safety Representatives fortnightly to ensure follow-up action has been taken to resolve any complaint or issues. |

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| Auditing | Annual auditing of monitoring results against any relevant approval conditions. |
| Reporting | <p>All complaints and incidents are to be reported to the project Environmental Representatives or the Workplace Health and Safety Representatives. .</p> <p>The Site Managers will be advised as soon as a complaint is received or an incident recorded.</p> <p>The complainant will be advised of what action is taken as a result of the complaint.</p> |
| Corrective Action | <p>Should incidents occur or complaints be received, including those in relation to previous occurrences, the following corrective actions will be undertaken:</p> <ul style="list-style-type: none"> • Investigation into the source of the complaint and methods of removing/reducing the reason for the complaint. • Where required, work place practices will be reviewed and changes implemented; • Where required, environmental monitoring will be undertaken; • Additional environmental awareness training of the workforce with respect to the procedures to be followed for environmental incidents or complaints; • Investigation into why any incidents/complaints were not addressed within the specified time frames; • Investigate incident/complaint follow-up according to the results of the investigation; and • Courtesy contact with complainants to advise of corrective actions taken. |