



URANQUINTY POWER STATION

ORIGIN ENERGY
URANQUINTY POWER PTY LTD
ACN 120384938

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

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Document Control

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1.0 INTRODUCTION

1.1 Foreword

This Environmental Management Plan (EMP) has been developed to detail the environmental protection measures to be employed during the operation of the Uranquinty Gas Fired Power Station

This EMP addresses the need for environmental safeguards during the operation of the project and facilitates the adoption of environmentally sensitive work practices. The aim of the EMP is to ensure that there is compliance with the environmental and planning consent conditions of approval for the project by Origin Energy Uranquinty Power (OEUP) & sub-contractors, and to ensure the environmental risks of the project are adequately managed. The EMP will also ensure environmental best practice methods are adopted in the operation of the power station via continuous improvement.

1.2 Objectives of the EMP

The objectives of this EMP are to:

- Operate power station in a manner that meets the commitments of our Environmental Policy
- Ensure environmental safeguards are implemented correctly;
- Ensure compliance with the requirements of all relevant environmental legislation, conditions of any applicable licence, consent approvals and permits; and
- Ensure that works are managed to reduce adverse impacts on the environment and are in accordance with best practice methods..

1.3 Project Description

The Uranquinty Power Station is the first major gas fired power station in NSW. It is to be operated as a peaking plant designed to meet the State's need for power at critical peak times during the day and in summer. It is expected to be NSW's most modern and efficient peaking power station and will play a critical role in assisting the State to meet its power needs and in minimizing greenhouse emissions.

The plant output will be generated by four 150MW open cycle gas turbines

The power station is fuelled by natural gas that passes through the site at a pressure of up to 25MPa.

The existing buried natural gas pipeline runs along the western side of the Plant and then diverts north-east between the Plant and switchyard. The natural gas enters the facility through a metering skid and a gas receiving station and is then directed to the gas turbines. Exhaust gases are dispersed via a stack, 35m in height, adjacent to each gas turbine building.

Process water is obtained from the town water reticulation system and treated via the demineralization plant to meet process specifications. This process uses reverse osmosis technology with a non-regenerable mixed bed polisher unit and treatment wastes are pumped to the evaporation pond.

Average daily makeup demand is estimated at 23m³/day, with the principal use being makeup water for the demineralisation plant meant to supply demineralised water to evaporative coolers of the gas turbines when in use. For most of the time the only water coming onto the site will be for potable use estimated at 0.15m³/day.

Approximately 1ML of the town water storage is held in reserve for firefighting purposes.

The basic components or structures involved in the facility are:

- gas pipelines and gas fuel filter and reduction station;
- gas turbine buildings, transformers and exhaust stacks;
- water storage and demineralization plant (reverse osmosis);
- power control centre/building;
- emergency diesel generators and minor distillate tanks; and
- fire control facilities.

Other support facilities include an office building and workshop. A storm water holding pond and several evaporation ponds are also constructed adjacent to the Plant.

Refer also to the *Site Layout Schematic - Appendix 1* which shows the key components or structures of the Power Station.

Two to six persons are on-site during operation. During other periods, an on call system, utilizing pagers, is functional.

The power station is designated to operate with the following performance parameters:

- Starts: 50-100 starts per unit per annum.
- Availability: 96% nominally.
- Capacity factor: 5%.
- Energy Sent Out: 263 GWh/a, at average of 5% ACF for 600MW power station.
- Natural Gas Consumption: 3.11 Pj/a (HHV).

1.4 Project Location

The Uranquinty Power Station is located on Uranquinty Cross Road near Uranquinty, approximately 15km south-west of Wagga Wagga in New South Wales. It covers a portion of Lot 782 on DP878179 and Lot 76 on DP754573, Parish of Yarragundry. The designated site area is 450m x 775m (35 Hectares).

The site is located on an intersection or crossover between an existing natural gas pipeline, which traverses local rural properties from south to north, and 132 kV electricity transmission lines. Direct access to the site is available from the sealed Uranquinty Cross Road. A disused railway line also runs along the southern boundary of this road corridor.

The map below shows the locality of the Power Station Site in relation to Wagga Wagga:



Figure 1 - Project Site Location in Relation to Wagga Wagga

2.0 ENVIRONMENTAL POLICY

The OEUP *Health, Safety & Environment Policy* statement, provided below, as maintained and endorsed by the Chief Executive Officer of Origin Energy, shall be

- clearly displayed within OEUP offices such that all personnel, contractors and visitors can easily identify the Policy Statement;
- included within induction material and referred to during employee, contractor and visitor inductions,
- available via the OEUP internet website; and
- where deemed appropriate, included within contract documentation and environmental documentation given to and/or released to contractors and other external authorities and stakeholders.

The Policy Statement highlights OEUP's corporate intent and accountability to environmental performance, specifically to do with environmental risk management, emergency management, and community.

The ongoing review and endorsement of this Policy Statement shall be conducted at an Origin Energy corporate level by the Chief Executive Officer then disseminated throughout the corporation. Uranquinty Power Station communication of the Policy shall then be further undertaken as described above.



Policy

Health, Safety & Environment

At Origin Energy, we value the wellbeing of our employees, contractors, customers, the communities in which we operate and the environment. We are committed to responsible management practices that minimise any adverse health, safety or environmental impacts arising from our activities, products or services.

We have in place a Health, Safety and Environmental management system for all our activities that drives continual improvement. The HSE Management System outlines HSE accountabilities to implement this Policy and requires that we:

- Identify and manage risks to as low as reasonably practicable where they have the potential to cause an accident, injury or illness to people, or unacceptable impacts on the environment or the community;
- Provide safe work places and systems of work, empower employees and contractors to address unsafe or hazardous situations and carry out their work in a manner that does not present a risk to themselves, others or the environment;
- Support the recovery and rehabilitation of employees in the event of work related injury or illness;
- Set objectives and targets which promote the efficient use of energy and resources, the minimisation of wastes and emissions and the prevention of pollution;
- Ensure compliance with relevant HSE legal requirements and other commitments;
- Require Contractors to manage HSE using standards and practices that accord with this Policy;
- Regularly review and report HSE performance.

In implementing this Policy we will engage with our employees, contractors, suppliers, business partners, customers and Government and communicate expectations to all persons working with or on behalf of Origin Energy.

Accountabilities

The Board is responsible for establishing and overseeing the Company's commitment to manage HSE in accordance with this Policy and for monitoring the performance of the Company with respect to its implementation.

The Managing Director is responsible for the implementation of the HSE Management System to ensure the commitments made in this Policy are being met.

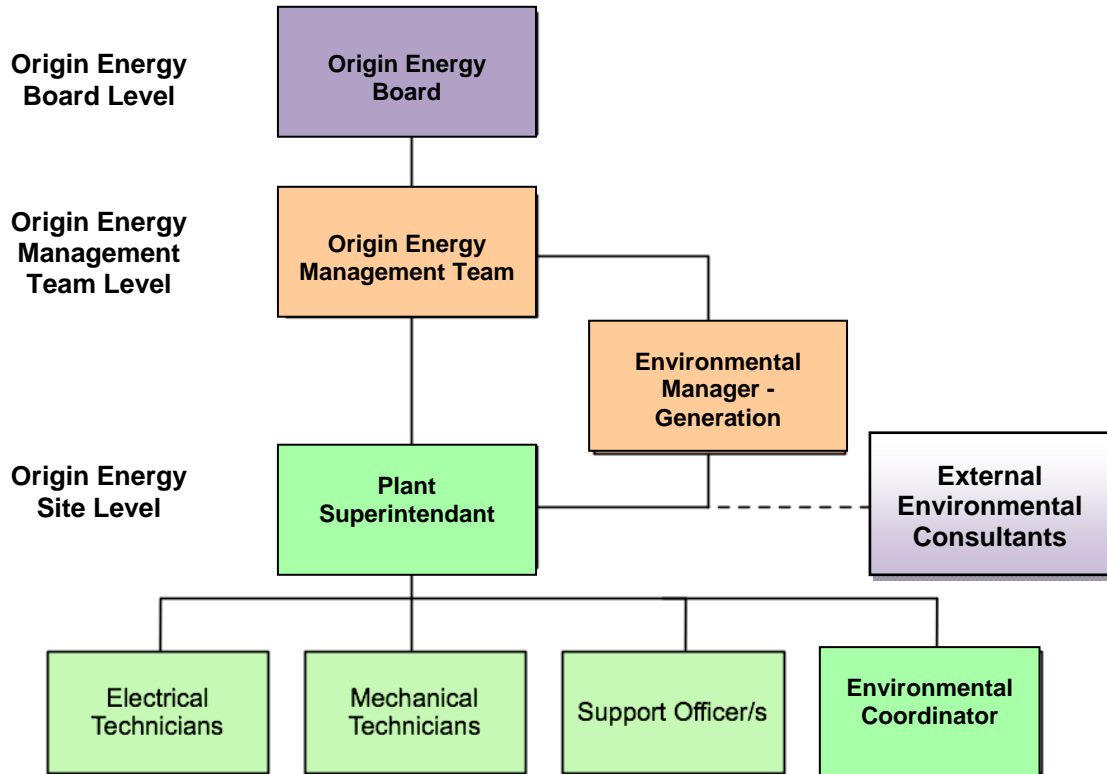


Grant King
Managing Director
September 2007
Review date September 2009

3.0 STRUCTURE AND MANAGEMENT RESPONSIBILITIES

3.1 Structure

The project team organizational structure is shown below. In accordance with line management functions, each member of the team has specific responsibilities, as detailed in Section 3.2.



3.2 Site and Specific Corporate Management Responsibilities.

All project personnel are required to comply with the requirements of this EMP. Specific environmental and related responsibilities for this project are listed in the following.

Environmental Manager - Generation

- Provide environmental assistance to the project and site Plant Superintendant.
- Undertake site audits of EMP
- Report environmental incidents to DECC as required.

Plant Superintendant

- Ensure that any necessary consents, licences, approvals, permits and certificates from the DECC (pollution control works) and any other relevant regulatory authorities are obtained and maintained.
- Ensure that appropriate resources are made available to enable compliance with the requirements of this EMP during the project.
- Ensure the Environmental Management Plan (EMP) has been completed, signed off by Environmental Manager - Generation and implemented.
- Ensure the project is undertaken in a manner which protects the environment and in accordance with statutory requirements & OEUP Environmental Policy.
- Ensure implementation of environmental management plans listed in Section 15 of this EMP.
- Ensure the implementation of an Environmental Surveillance and Auditing Schedule, listed in Section 12 of this EMP.
- Participate in environmental audits of the project, report non-conformances and take preventative and corrective actions as required.
- Ensure that all site personnel, including sub-contractors, are aware of their environmental responsibilities in the management and implementation of safeguard controls and actions.
- Ensure that corrective and preventative actions arising from internal assessments or environmental audits are implemented.
- Ensure that any spills or accidents on site that are likely to cause significant pollution are reported to the Origin Energy Corporate Management Team immediately and dealt with appropriately. Ensure that records are kept including details of the incident, notification of DECC and actions taken.
- Ensure that signed and dated Environmental Monitoring checklists are completed, placed in the project environmental files.
- Report on effectiveness of safeguard measures to the Origin Energy Corporate Management Team.
- Community consultation/liason contact.
- Organise quantitative noise assessments in response to community complaints as per Section 12.
- Undertake annual review and update of EMP.
- Prepare Annual Environmental Report
- Manage maintenance/rectification work in regard to irrigation or oil water separator systems failure.

Site Environmental Coordinator

- Undertake site inductions for all personnel
- Undertake daily/weekly Site Inspections
- Undertake quarterly off-site screening inspections
- Manage maintenance works for off-site screening inspections
- Manage site landscape works
- Manage environmental filing system
- Participate in environmental audits of the project, report non-conformances and take preventative and corrective actions as required.

- Undertake water quality sampling & monthly metrological weather data downloads.
- Manage the Environmental Surveillance and Auditing Schedule, listed in Section 12 of this EMP.

Site Personnel

- Comply with this EMP and statutory requirements under the direction of the Plant Superintendant and other persons duly authorised by OEUP.
- Undertake daily plant inspections and equipment checks as per program.
- Participate in environmental audits of the project, report non-conformances and take preventative and corrective actions as required.
- Report to the Plant Superintendant any environmental situation that requires rectification and which cannot be rectified in the normal course of duties.
- Work closely with the Contractors and Temporary Employees in ensuring a commitment to working in an environmentally sound manner and provide information, instructions and supervision to others who may attend the site.
- To liaise and work with the Plant Superintendant in investigating and reviewing all incidents or events, and to ensure incident reports are properly documented with appropriate corrective action taken where required.
- To suggest ways of eliminating hazards and improving environmental performance at the Power Station.

Contractors and Temporary Employees

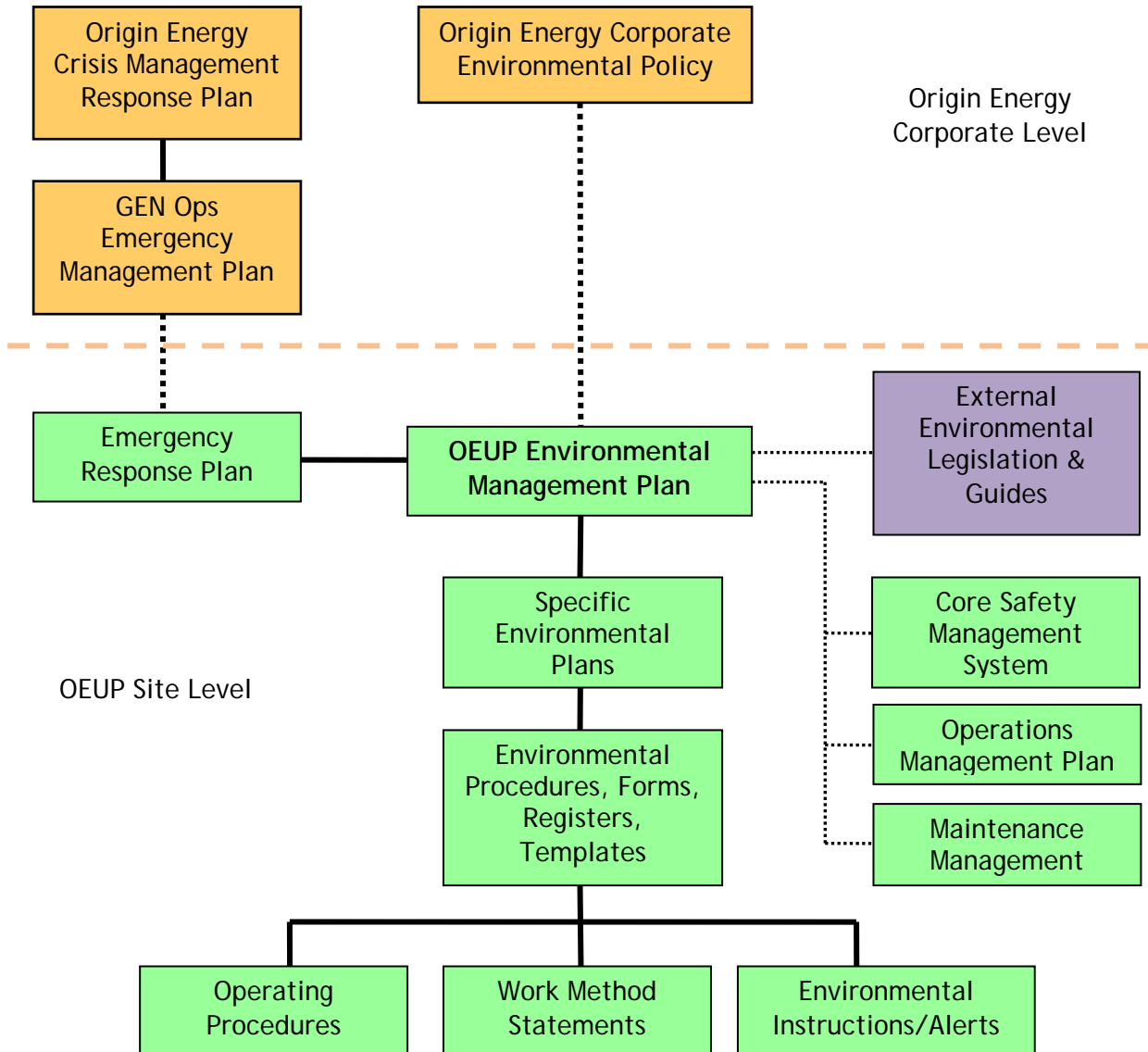
The responsibilities of a Uranquinty Contractor and Temporary Employee include, but are not limited to, the following:

- To know and work in accordance with this EMP and site specific procedures, work instructions and work method statements where relevant.
- To co-operate and comply with all instructions given by OEUP Employees, or those undertaking specific environmental roles.
- To immediately notify the Plant Superintendant or a OEUP Employee of any environmental incident or hazard.
- To suggest ways of eliminating hazards and improving environmental performance at the Power Station.

4.0 EMP DOCUMENTATION

4.1 Documentation Hierarchy

In relation to the Uranquinty Power Station Environmental Management Plan, a brief hierarchy of documents is set out below:



4.2 EMP Documentation

The EMP will be developed by the Plant Superintendent with assistance from the site Environmental Coordinator and External Environmental Consultants as required.

The EMP is developed, stored and maintained on-site. The Controlled Copy of the plan will be in electronic form. Hard copies will be stored on-site in identified folders. The hard copy EMP's will be marked 'UNCONTROLLED COPIES'.

Completed & signed off documents/forms under the EMP such as training records, and site audit sheets shall be maintained in Site Files.

The Environmental Coordinator will be responsible for the proper filing of all documentation associated with the EMP, and must make this documentation available for both internal & external audits of the EMP.

The Environmental Management Plan (EMP) will be available to all personnel & sub-contractors to review on-site.

4.3 Amendments and Variations to this EMP

The requirements of this EMP may need to be amended or varied, prior to or during the course of project.

The procedure for amending the EMP is a formal process in order to ensure that the environmental implications for the proposed amendments are acceptable. The procedure outlined below will maintain the integrity of the EMP and ensure that any amendments are approved by the Plant Superintendent. For all proposed amendments or variations to this EMP:

1. Notify the Plant Superintendent for the proposed amendment.
2. The Plant Superintendent will discuss with the Environmental Coordinator, Environmental Manager - Generation and or external environmental consultants. If the amendment is approved, the EMP will be altered. The Version Status Table at the front of the EMP will be updated to reflect the EMP alteration.

Once approved, the amended aspects of the EMP are now required to be implemented along with the other environmental management actions listed.

4.4 Records Management

OEUP recognise the importance of retaining business information in a manner that is readily available to personnel and easily retrieved.

For the purposes of this section, a record may include such items as:

- minutes of meetings;
- induction and training attendance records;
- environmental related inspection, review and audit report records;
- plant inspection, testing, calibration, servicing, maintenance and monitoring records;
- completed hazard and incident reports;
- documented incident investigations as well as follow-up action;
- plant and substance records such as manufacturer instructions, operational manuals and material safety data sheets;

- completed environmental management plans, performance reports or statistical reports;
- records of inspections, services or audits provided by external authorities or agencies;
- environmental related email which may be considered as official correspondence

At the Uranquinty Power Station, specific filing locations are maintained to enable easy filing of hard copy records. Furthermore, electronic or soft copy records are maintained within a reliable internal electronic document management system location.

The Environmental Coordinator will be responsible for the on-going management of the environmental filing system.

The minimum retention period of records shall be undertaken as defined within the following table. Where any doubt exists in relation to the minimum period of retention of a particular record type, it is to be retained indefinitely.

Retention Period	Record Description / Type
6 years	<ul style="list-style-type: none"> • Incident or investigation reports of any kind • Induction and training records of any kind • All other environmental related records (e.g. completed assessments, permits, inspections, audits, logs, minutes)
30 years	<ul style="list-style-type: none"> • Risk assessment, atmospheric/environmental monitoring, <i>DECC</i> correspondence related records
Indefinitely	<ul style="list-style-type: none"> • Operational manuals for the power station plant • Drawings relating to power station plant design

5.0 LEGISLATIVE REQUIREMENTS AND APPROVALS

This section outlines the environmental legislative requirements and approvals that need to be complied with to minimise the risk of environmental harm from project work.

5.1 Environmental Legislation

To ensure legal compliance, the following legislation has been identified as affecting works at this Project.

The Site maintains an up to date electronic register of the Actual Legislation & Summary Documents on each piece of legislation in regard to how the legislation affects OEUP activities. This register was last updated in July 2008 to reflect environmental legislative issues that affect the operation of the power station.

The Environmental Coordinator will be responsible for maintaining and updating the site legislation register as required.

Environmental Planning Legislation -

Environmental Planning & Assessment Act, 1979

Conservation & Heritage Legislation -

National Parks & Wildlife Act, 1974

Heritage Act, 1977

Pollution & Waste Management Legislation - (Including Noise, Water, & Air Pollution)

Protection of the Environment Operations Act, 1997

Hazardous Substances -

Occupational Health and Safety Regulation, 2001

Protection of the Environment Operations (Waste) Regulations, 2005

Protected Plants -

National Parks & Wildlife Act, 1974

Native Vegetation Act, 2003

Waste Disposal -

Protection of the Environment Operations Act, 1997

Protection of the Environment Operations (Waste) Regulations, 2005

Environment/Incident Reporting -

National Environment Protection (National Pollutant Inventory) Measure, 1998

Protection of the Environment Operations Act, 1997

National Greenhouse Emissions' Reporting Act, 2008

5.2 Project Specific Environmental Conditions

As well as complying with relevant legislation, all site activities must comply with the provisions set out in the following:

- Department of Planning Development Consent - DA-31-2-2004-i;
- DECC Environmental Protection Licence - 12490;

Project specific environmental conditions and action items from these documents is summarised in Appendix 4 of the EMP.

These documents are available on-site as up to date hard copy or electronic format.

Other relevant site specific environmental documents include:

- Uranquinty Power Station Environmental Impact Statement (EIS), January 2004;
- Water Management Strategy, April 2004.

These documents are available on-site in hard copy or electronic format.

5.3 Site DECC Licence

A copy of the site DECC Licence will be stored in hard copy at all times in any easily accessible location on-site.

The Site Licence is to be made available to any authorised officer of the DECC. The Site Licence also must be made available for inspection by any employee or contractor working at the site.

The Environmental Coordinator will be responsible for ensuring an up to date copy of the Site DECC Licence is stored on-site and is available for inspection. All OEUP personnel will know where the Site Licence is stored so if required they can produce the Site Licence for inspection.

6.0 PROJECT ENVIRONMENTAL RISK PLANNING

This section outlines how environmental risk planning will be undertaken for the project.

OEUP utilises a risk management approach to its activities from a commercial, safety and environmental perspective. Due to the nature and variety of OEUP's work activities it is not always possible to foresee all environmental hazards. Changes occur to work procedures, new equipment is introduced or other circumstances arise that may require changes to be adopted for some aspects of work.

In these circumstances and as part of all operations where hazards maybe present, a risk management approach is to be adopted. This acts to eliminate or minimise the risk of environmental incidents or community complaint.

As part of all OEUP work activities and operations, personnel shall take the necessary precaution and diligence to:

- identify hazards/issues;
- assess the risk associated with those hazards/issues; and
- choose adequate controls to ensure an acceptable level of risk.

The risk management processes used by OEUP is an all encompassing risk management procedure used for not only environmental hazards/issues, but also for managing safety, commercial and community risks. The Risk Management Process is fully detailed in Section 11 of the OEUP Core Safety Management System Manual (CSMSM). The CSMSM details the risk assessment and control process and the Risk Management Matrices used.

Documentation of the environmental risk management process can occur in different forms and the Table below shows how documentation could occur for different scenarios.

Scenario	Risk Management / Assessment Strategy Description
General work activities (e.g. outage repair and maintenance works, standard maintenance tasks)	Planned strategy of hazard identification and risk management assessment by those performing and supervising the work. Documented: <ul style="list-style-type: none"> • <i>Work Method Statements;</i> • Contractor Work Method Statements;
Normal power station plant access, operational requirements and performance of standard / basic work tasks	Planned strategy of hazard identification and risk management assessment by those performing and supervising the work and higher level environmental hazard identification by Plant Supervisor and Corporate Environmental Manager. Documented: <ul style="list-style-type: none"> • <i>Operating Procedures;</i> • <i>Work Instructions;</i> • Contractor Work Procedures / Methods / Assessments; • Risk Management Plans as detailed in <i>Section 15. Significant Environmental Issues and Management Plans.</i>

<p>Major plant modification, process, design or control change</p>	<p>Planned strategy of hazard identification and risk management assessment by specialist personnel and plant end users.</p> <p>Documented:</p> <ul style="list-style-type: none">• HAZOP and Environmental Studies;• Design and Risk Analysis;• Risk Assessments.
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7.0 ENVIRONMENTAL TRAINING

7.1 Training

Personnel working on the project will receive the appropriate training and possess the required skills to fulfil their role in a competent manner. Only approved contractors that fulfil OEUP's training and competency requirements will be used on the project. Environmental training will include at a minimum:

- Project site Environmental induction.
- Job-specific induction, including review of relevant environmental management plans within this EMP for specialised personnel or contractors.
- Tool box meetings including discussion on tasks and the Work Method Statements (including assessment of environmental risks and controls).
- Specialised environmental training and instructions as required (e.g. operation of air or noise monitoring equipment).

Induction training will be conducted by OEUP Personnel. Project personnel and all subcontractors shall be inducted. The EMP will be available to all personnel & sub-contractors to review on-site.

7.2 Training Programs

A project training and induction program will be developed by the site Plant Superintendent. This program will be documented in an Environmental Training Plan. This plan provides a Proforma for breaking down project personnel & contractors into specific groups and then developing the appropriate training requirements for each.

This training plan should be updated throughout the project as required.

7.3 Training Records

As part of recording and maintaining an adequate induction, training and competency system, the following documentation and records shall be maintained at the Power Station:

System, Document, Record	Description
General Environmental Training File	General file which contains items such as hard-copy internal training attendance registers, completed assessment and an index to electronic file locations of inductions and training maintained internally by the Power Station
Training Register	To be maintained for all on site personnel that summarises training needs, details of completed inductions, training and certification, and relevant dates for refresher training.
Authorised Contractor Register	To be maintained to document the details of completed inductions, training and certification, and relevant dates for refresher training of contracted personnel who undertake work on site.

OEUP shall source only registered training organisations and/or topic area experts, in an external training development and delivery function.

Training records will be appropriately filed by the site Environmental Coordinator in the site Document Management System.

7.4 Operator Training

In addition to the above induction and specific environmental training, OEUP personnel undertake a range of other training specific to the Power Station's operations and hazards inherent to the maintenance activities required at the site. The requirement to source and undertake this training for personnel is undertaken via a needs analysis process where on site operational roles, plant interactions and work activity hazards and energies are identified for each worker with subsequent awareness, training and competency requirements matched-up accordingly.

Examples of such training include, but are not limited to: Gas Turbine Familiarisation & Simulator Training, Gas Supply Training, Water Treatment Plant Training, Transformer Training, Risk Assessment Training, PTW Training, Hazardous Area Awareness Training, and Hazardous Substances Awareness.

8.0 COMPLAINTS HANDLING

The site shall maintain the following for community complaints:

- a) a 24-hour, toll-free telephone number on which complaints about the development may be registered;
- b) a postal address to which written complaints may be sent;
- c) an email address to which electronic complaints may be transmitted.

Complaints Notification Channels	
Toll Free Phone Number	1800 465 719
Postal Address	PO Box 46 Uranquinty NSW 2652
Email Address:	complaints@originenergy.com.au

The site Environmental Coordinator shall record details of all complaints received through the means listed above in an up-to-date Project Complaints Register.

The Register shall record,

- a) the date and time, where relevant, of the complaint;
- b) the means by which the complaint was made (telephone, mail or email);
- c) any personal details of the complainant that were provided, or if no details were provided, a note to that effect;
- d) the nature of the complaint;
- e) any action(s) taken by the site in relation to the complaint, including any follow-up contact with the complainant;
- f) and, if no action was taken by the site in relation to the complaint, the reason(s) why no action was taken.

The Complaints Register shall be made available for inspection by the DECC and the Director-General upon request.

An up to date summary of the Complaints Register, without details of the complainants, will be also developed and maintained by the site Environmental Coordinator. This summary document will be made available to the public for inspection upon request.

The site Plant Superintendent shall be notified of all complaints received in relation to the project.

8.1 Complaints Response Process

The OEUP toll free complaints phone number will be manned 24 hours a day and link into the Origin Energy call centre. Complaints received at the call centre will be directed on to the site, on-call operator or site Plant Superintendent in order of notification order.

All received complaints will be investigated as soon as practicable. OEUP aims to advise noise complainants within one hour and all other complainants within 24 hours that their complaint has been received and what action is being taken.

If appropriate, a response will be provided within a further 24 hours for noise complaints and within 48 hours for all other complaints, advising what action has been taken, whether no action is proposed to be undertaken and the reasons why no action will be undertaken, or what action is in progress and when a detailed response will be provided.

9.0 COMMUNITY CONSULTATION

The site will continue the Community Participation Program that was developed and approved by the Department of Planning for construction and commissioning of the power station, on an on-going basis, in consultation with the Community Participation Panel.

The Community Participation Panel is a group of community members that reside in Uranquinty. The Panel is chaired by an independent person. Details of the Panel are detailed in The Community Consultation Management Plan.

The Community Participation Program includes:

- a) the general types of information about the environmental management and impacts of the project that the community will receive;
- b) the means by which information will be provided to the community (for example, presented at regular meetings, web site information etc);
- c) a mechanism through which the community can provide feedback to the site in relation to the environmental management and impacts of the development;
- d) a system and procedure to address community complaints.

The site Plant Superintendent is responsible for managing the Community Consultation Programme.

The updated Community Consultation Management Plan is available on-site in hard copy or electronic format.

9.1 Community Access Document Register

Subject to confidentiality, the site shall make all documents required under the Development Consent available for public inspection on request. This shall include provision of all documents at the site for inspection by visitors, and in an appropriate electronic format on the OEUP internet site.

Documents will include but not limited to:

- Development Consent
- DECC Licence
- EIS
- Water Management Strategy
- Statutory Annual Reports
- Statutory Monitoring
- Complaints Register (Summary)

The Environmental Coordinator will be responsible for keeping this community access document register up to date both in site hard copy form and electronic form.

10.0 ENVIRONMENTAL REPRESENTATIVE

OEUP shall nominate a suitably qualified and experienced Environmental Representative for the Project. The Environmental Representative will be employed on a full-time basis during the life of the development and will also be approved by the Director General.

The Environmental Representative shall be:

- a) the primary contact point in relation to the environmental performance of the development;
- b) the primary interface with the Community Participation Panel;
- c) responsible for all Management Plans and Monitoring Programs required under this consent;
- d) responsible for considering and advising on matters specified in the conditions of this consent, and all other licences and approvals related to the environmental performance and impacts of the development;
- e) responsible for the management of procedures and practices for receiving and responding to complaints;
- f) given the authority and independence to require reasonable and feasible steps be taken to avoid or minimise unintended or adverse environmental impacts, failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur.

The current Project Environmental Representative and contact details are listed below.

10.1 Current Environmental Representative

OEUP Environmental Representative	Contact Details
Guy Corbett (Construction and Commissioning) Matt Hallam (Operations)	Phone: 02 69 270074
	Phone: (02) 6938 5106
	Mobile: 0419 648 171
	Mobile: 0417 600 237
	Email: gcorbett@ermgroup.com.au
	Email: matthew.hallam@originenergy.com.au

10.2 Changes to Environmental Representative

If the project is going to change the current Environmental Representative, then the site Plant Superintendent is to prepare and send off an application detailing the qualifications and experience of the nominated Environmental Representative to the Director General for Department of Planning (DoP) for approval.

After DoP approval, the site Plant Superintendant shall notify the Director-General, the DECC, WWCC and the Community Participation Panel of the name and contact details of the new Environmental Representative. The contact details in this EMP will also be updated.

The Environmental Coordinator will ensure all correspondence in regard to changes to the Environmental Representative is stored in the site environmental files.

11.0 EMERGENCY RESPONSE

11.1 What is an Environmental Incident

An Environmental Incident is an event which has the potential to cause environmental nuisance or harm or is an external complaint relating to an incident.

An incident is recognised to have occurred if staff answers yes to one of the following questions:

- Did the incident cause or threaten to cause an exceedance of an air or water discharge limit?; or
- Did the incident cause or threaten to cause damage to the environment (e.g., land contamination, Fire)?; or
- Did the incident cause or threaten to cause a nuisance to our neighbours (e.g. excessive noise, dust blown from site, odours)?; or
- Was an external complaint received?; or
- Did the incident result or could have resulted in a release of contaminants to land, water or air due to an abnormal event? Contaminants could be oil, chemicals, dust, bacteria, and solvents. An abnormal event could be mechanical failure of pipes, valves, tanks, drums. Where contaminants can or have reached storm water drains, these should be lodged as incidents.

11.2 Environmental Incident Categories

Incident-CRISIS/Emergency Management (Very high risk):

- A situation where serious environmental harm is occurring and beyond the projects resources to control. Also covers disaster recovery from fire, explosion, toxic release or natural disasters.
- This covers those incidents which require outside assistance from emergency services, has an effect on the community / public; requires media response; may involve compensation claims; requires immediate relief; extensive environmental remediation; immediate management response.

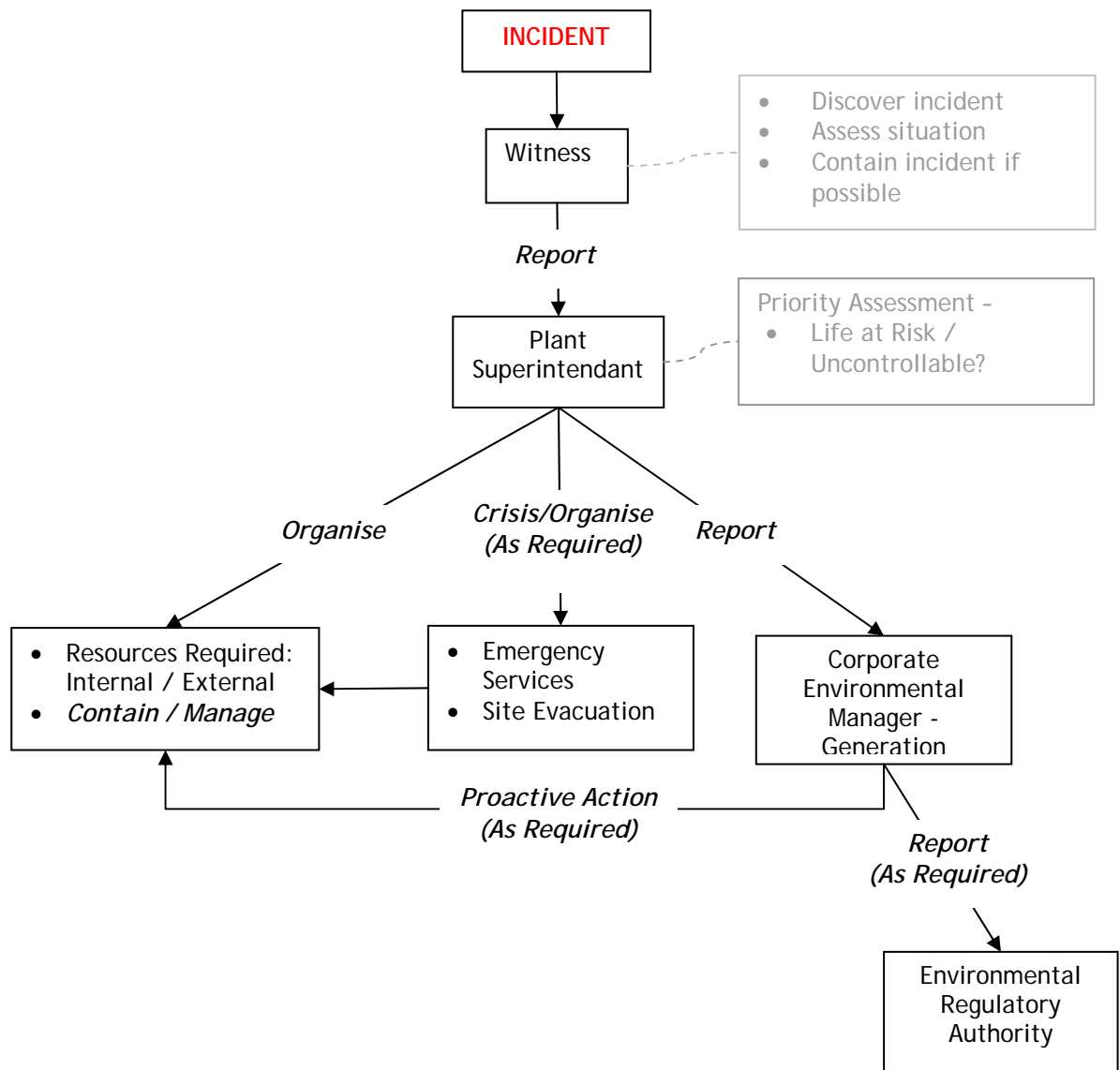
Incident- Medium Risk: These incidents include events involving:

- the release of medium quantities (> 1000 litres) of contaminants to land, water, or air due to an abnormal event
- breaches of licence compliance or the potential to
- contaminants requiring specialist management due to containment difficulties or their higher potential for impact
- valid external complaints
- These incidents may cause environmental harm or nuisance.

Incident- Low risk:

- These incidents involve small quantity (< 1000 litres), low impact contaminants and are well contained on site. These can be managed by individuals without requiring additional assistance or specialist resources.

11.3 Roles in an Environmental Incident



11.4 Emergency Response Planning

Despite having inherently safe operations, safeguards and work processes, OEUP recognises that there are potential emergency situations that specifically apply to its location and operations.

A site Emergency Response Plan (ERP) has been developed and implemented for the Uranquinty Site. The ERP is managed under the site Core Safety Management System, but details specific responses to environmental incidents and conditions. As a minimum, the *Emergency Response Plan* shall be maintained such that it contains the following information:

- Emergency priorities
- Hazardous materials
- Emergency types
- Emergency Response Processes

- Responsibilities in an Emergency event
- Resources
- Training
- Notification & Contact Details

The Uranquinty Power Station is to maintain its response capability based on the most probable emergencies that may occur at the site. This response capability is dependent on emergency services and facilities in the immediate area.

At a corporate level, Origin Energy maintains two separate Emergency Response Plans (Corporate Management and Generation) and how the site ERP links into these corporate plans is illustrated in the Documentation Hierarchy diagram in *4.1 Documentation Hierarchy of this EMP*.

12.0 Environmental Monitoring

As part of implementing this EMP, OEUP recognise that processes for inspection, monitoring, and auditing, are essential in determining how well the environmental management on-site is:

- addressing key plant and environmental risks;
- achieving policy and regulatory objectives;
- responding to identified incidents, non-compliances or non-conformance issues;
- keeping up-to-date with legislative and industry standards.

Environmental monitoring to be undertaken during the project is detailed below in section 12.1 and the sites regulatory environmental limits are detailed in Section 12.2.

12.1 Environmental Monitoring/Inspection/Auditing Program.

Issue	Summary of Monitoring Requirements	When	Responsibility
Surface Water Quality	Inspect stormwater drainage, stormwater pond, evaporation pond, irrigation equipment/areas during the weekly Environmental Inspection.	At least weekly depending on activities and wet weather events	Environmental Coordinator
Stormwater pond	Stormwater pond discharge water quality - Sampling & Monitoring: <ul style="list-style-type: none"> • Chloride • Conductivity • pH • Sodium • Total Suspended Solids 	Daily for any discharge off-site exceeding two hours	Environmental Coordinator
	Irrigation water quality monitoring - <ul style="list-style-type: none"> • Conductivity • pH • Total Suspended Solids • Hydrocarbons 	Every 60 days during the irrigation season	Environmental Coordinator
Hazardous Chemical Storage	<ul style="list-style-type: none"> • Inspect chemical storage areas, lube skids and equipment to ensure no leaks are occurring. • Inspect oil water separator to ensure proper operation. 	Daily & Weekly	Plant Technicians

Air Quality	NOx Monitoring	Continuous	-
	Continuous Emission Monitoring System inspection	Weekly	Plant Technicians
	Stack emission testing - <ul style="list-style-type: none"> • Velocity • Volumetric flow rate • Temperature • Moisture content in stack • Dry gas density • Molecular weight of stack gases • Carbon dioxide • Oxygen 	Within 90 Days of initial operation	Environmental Coordinator
		Annually	Environmental Coordinator
Off-Site Visual Screening	Inspect off-site screening works for: <ul style="list-style-type: none"> • Replanting requirements • Weed Control • Watering schedule • General maintenance 	Quarterly	Environmental Coordinator
On-site Landscaping	Inspect off-site screening works for: <ul style="list-style-type: none"> • Replanting requirements • Weed Control • Watering schedule • General maintenance 	Weekly for establishment period (first 6 months) and then Monthly	Environmental Coordinator
Septic Waste System	Inspection operation of overflow submersible pump	Weekly	Environmental Coordinator
	Inspect waste tank level & arrange emptying when required	Quarterly	Environmental Coordinator
	Inspect transpiration trench area for - <ul style="list-style-type: none"> • Water pooling • Vegetation Maintenance 	Quarterly	Environmental Coordinator
Waste Disposal/Recycling	Inspect bins to ensure organise bin emptying before overflowing.	Weekly	Environmental Coordinator

Noise Emissions	Qualitative Noise Checks	When plant or equipment is introduced to the site or new activities undertaken	Environmental Coordinator
	Quantitative noise assessments - As per Section 15.3 Noise Management Plan	Within 90 Days of initial operation	Plant Superintendent/ Environmental Coordinator
		Annually	
	Quantitative noise assessments in response to community complaints - As per Section 15.3 Noise Management Plan.	As required -	Plant Superintendent/ Environmental Coordinator
Meteorological Monitoring	Monitoring for - <ul style="list-style-type: none"> • Temperature at 2 metres • Temperature at 10 metres • Wind speed at 10 metres • Wind direction at 10 metres • Sigma theta at 10 metres • Solar Radiation 	Continuous	Logged Data
	Continuous Meteorological Monitoring System inspection	Weekly	Environmental Coordinator
	Monthly download & storage of data in Site files	Monthly	Environmental Coordinator
Aboriginal Artefacts	Observe excavation works to detect Aboriginal artefacts	During excavation works	Environmental Coordinator
Housekeeping	Environmental Inspection Checklist	Weekly	Environmental Coordinator

Audits	Internal Environmental Audit of EMP	Annually	Plant Superintendent/ Corporate Environmental Manager - Generation
	External Environmental Audit of EMP and site compliance	After first 12 months of operation	Plant Superintendent/ Corporate Environmental Manager - Generation
		Tri-Annually	Plant Superintendent/ Corporate Environmental Manager

12.2 Site Environmental Limits:

NO _x :		
	100 Percentile Limit (mgm ⁻³)	Reference Conditions
Nitrogen dioxide (NO ₂) or nitric oxide (NO), or both (as NO ₂)	51 (Natural gas)	Dry, 273 K, 101.3 kPa, and 15% O ₂
	Diesel fuel not being used as power station fuel	

Noise:				
Residence	Day	Evening	Night	
	7am-6pm Mon-Sat 8am-6pm Sunday & PH	6pm - 10pm all days	10pm-7am Mon-Sat 10pm-8am Sunday & PH	
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _A (1 minute)
Pine Grove	38	38	38	45
The Wardrobe	37	37	37	45
Wallace	37	37	37	45
Any other residence	35	35	35	45

Residence locations in relation to Power Station site illustrated in Figure 2 below.

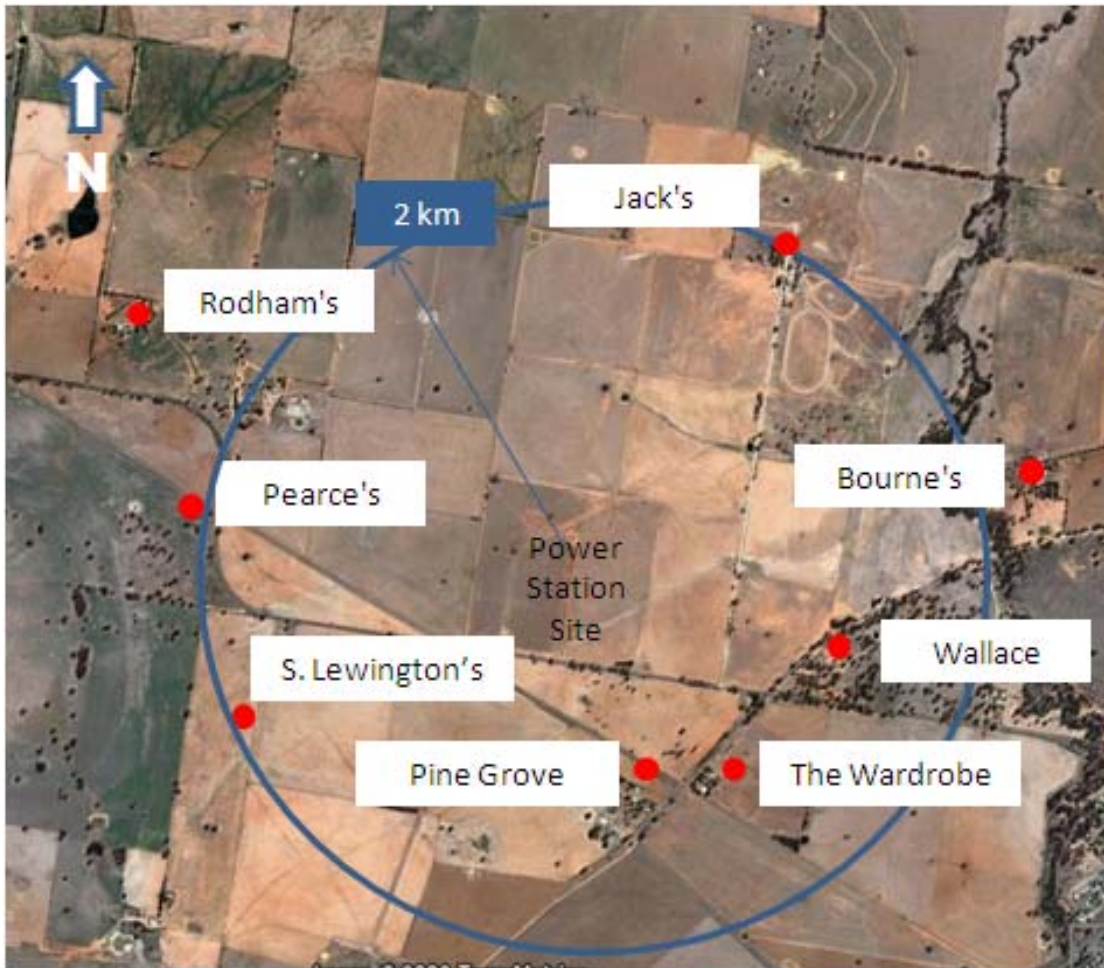


Figure 2 - Near Neighbours in relation to Project Site Location

13.0 ENVIRONMENTAL REPORTING

As part of improving environmental performance, OEUP recognises the importance of reporting and addressing issues of concern that relate to environmental management. Furthermore, the organisation is committed to complying with legislative requirements for issues relating to reporting of monitoring results as well as notification of specific occurrences to the relevant statutory authorities.

Therefore, the OEUP maintains documented processes for:

- Incident reporting;
- Hazard reporting;
- Environmental performance / statistical reporting;
- Statutory Environmental Reporting
- Pollution Incident External Notification.

13.1 Incident Reporting

The Incident Management process starts when the incident occurs and includes:

- reporting/notification;
- investigation;
- corrective action.

Reporting / Notification

All environmental incidents will be reported and notified using the reporting process detailed within *Section 13.0 Reporting, Incident and Non-Conformance Processes* within the *OEUP Core Safety Management System Manual*.

Investigation

All incidents and injuries that occur at the Uranquinty Power Station will be investigated. The three types of investigation that may be used are summarised below:

- Informal - this is a process of investigation where an incident of a minor nature or a hazard requires an informal investigation performed by the site Plant Superintendant to establish the details and formulate a strategy to ensure it does not occur again.
- Formal - the nature of the incident is deemed *Significant* and warrants a team being set up to investigate the incident and a written report compiled.
- External - the event could lead to regulatory action. An investigation team external to OEUP, made up of experts in relevant fields, may be engaged.

Corrective Action

All incidents will require some form of corrective action and follow up.

The site Plant Superintendant is responsible for ensuring that the corrective actions are completed within the specified time.

A review of the control measures is to be undertaken to ensure that they are effective once they have been implemented.

13.2 Hazard Reporting

OEUP supports a proactive approach to environmental management and as such all employees are encouraged to take action to eliminate hazards of a one-off / minor nature and also report hazards and information to other on site personnel. Where a hazard cannot be immediately eliminated or controlled it is to be verbally reported to the Site Superintendant and reported via the Incident Reporting process detailed in *Section 13.1*.

Following identification, hazards are to be managed as per *Section 6. Project Environmental Risk Process*.

13.3 Environmental Performance / Statistical Reporting

OEUP shall maintain an internal reporting process with respect to environmental performance and compile environmentally related statistics on a monthly and annual basis.

The site Plant Superintendant will develop an *OEUP Monthly Site Report*. The environmental indicators and statistics provided within this report will include, but are not limited to:

- number of environmental inspections conducted;
- number of responses to audit findings closed out;
- number of significant environmental incidents;
- number of external complaints.

Additional or site specific information relating to corrective actions, incidents, investigations may also be compiled and reported against on a monthly basis via the *Monthly Site Report*.

13.4 Statutory Environmental Reporting

OEUP shall ensure that it meets all the statutory environmental reporting requirements detailed in the sites DECC Licence and Development Consent. The table below details the statutory reporting requirements for the site.

Statutory Environmental Reporting			
Reported:	Reference:	To:	When:
Air Quality Verification	DA-31-2-2004-i: Section 4.3	Department of Planning	Within 90 days of commencement of Operation.
Noise Monitoring Verification	DA-31-2-2004-i: Section 4.5	Department of Planning	Within 90 days of commencement of Operation.
Hazard Audit Report	DA-31-2-2004-i: Section 4.8	Department of Planning	Within 12 months of commencement of the Operation and then every 3 years.
Environmental Audit Report	DA-31-2-2004-i: Section 4.9	Department of Planning	Within 12 months of commencement of the Operation and then every 3 years.
Annual Performance Reporting	DA-31-2-2004-i: Section 7.3	Department of Planning	Annually
DECC Annual Return	DECC Licence - 12490: Section R1.1	NSW DECC	Due 60 Days after 27 November annually

13.5 Pollution Incidents - External Notification Guide

In the event of a pollution incident on-site that causes or threatens to cause material harm to the environment as deemed under the NSW Protection of the Environment Act 1997 the following external notification guide will be followed.

Duty to Notify Pollution Incidents	
<i>What must be notified:</i>	<p>Pollution incidents causing or threatening material harm to be notified.</p> <p>Meaning of "Harm":</p> <p>a. Harm - actual or potential harm to health/safety of humans or to ecosystem that is not trivial or results in actual loss or property damage of an amount exceeding \$10,000.</p> <p>b. Loss - Includes all reasonable costs & expenses that would be incurred preventing, mitigating or making good damages.</p> <p>Under this section it does not matter if the pollution event did not go off-site. Pollution events on-site that meet these criteria have to be notified.</p>
<i>Who to Notify:</i>	<ul style="list-style-type: none"> • NSW DECC • NSW Department of Planning
<i>Contact Details:</i>	<ul style="list-style-type: none"> • NSW DECC - 131 555 (local call cost throughout NSW except from mobile phones), or (02) 9995 5555 (if calling from outside NSW). • NSW Department of Planning - 02 9228 6111
<i>Timeframe:</i>	Verbal notification as soon as practicable (but within 12 hours) and full written details within seven days of incident occurring.
<i>Notification Details:</i>	<p>a. Verbal notification first off followed by written notification.</p> <p>b. Relevant information required -</p> <ul style="list-style-type: none"> • Time, date, nature, duration, location • Location of place pollution occurring from • The nature, concentrations, quantity of pollutant • Circumstances (causes) • Action taken or proposed actions to deal with incident.
<i>Notification to be Undertaken By:</i>	Origin Energy Corporate Environmental Manager - Generation

14.0 ENVIRONMENTAL REVIEW

14.1 Environmental Inspections and Auditing

Environmental site inspections will be carried out by the site Environmental Coordinator at least weekly depending on activities to ensure compliance with this EMP and statutory requirements. The findings of these inspections shall be documented on the Environmental Inspection Checklist to be utilised on-site.

Other environmental inspections and their frequency have also been identified in *12.1 Environmental Monitoring/Auditing Program*.

Internal audits of OEUP EMP shall be undertaken annually. These audits shall be undertaken by internal Environmental Personnel or external Environmental Auditing Consultants, to review the implementation of the EMP and overall standard of onsite compliance with legislative requirements. These audits shall be documented and reported against an agreed audit criteria.

External EMP audits shall be undertaken 3 yearly. These audits shall be undertaken by external Environmental Auditing Consultants to review the overall implementation and effectiveness of the EMP, related site specific plans, procedures and associated documentation and overall standard of onsite compliance with legislative requirements.

Results of audit reports shall be formally tabled and discussed within Origin Energy Management Meeting forums and Uranquinty Monthly Team Meeting forums. Within these forums, responsible persons and timeframes are to be planned and documented for corrective and preventative actions agreed to.

Audit reports, action plans and any other documentation stemming from the audit process shall be kept for a minimum of six years to demonstrate ongoing OHS monitoring and improvement. The Environmental Coordinator will be responsible for site filing of these documents.

14.2 Project Management Review

This EMP shall be formally reviewed by the site Plant Superintendant every 12 months following commencement of the power station operations and when significant changes are made to the project. The review shall ensure that the EMP is maintained and kept up-to-date such that changes to legislative requirements, procedures and practices are fully incorporated into the EMP.

Upon amendment of document content and subsequent release of the reviewed EMP, the version number and version release date on the front of this Manual's cover page shall also be updated as well as other associated plans and procedural documents as relevant.

15.0 SIGNIFICANT ENVIRONMENTAL ISSUES AND MANAGEMENT PLANS

The following environmental issues are considered to warrant specific management actions for the operation of the Uranquinty Power station. These issues have specific regulatory requirements (contained in the development consent or Environmental Protection Licence) and/or are considered to have the potential to result in a non-compliance with a legislative requirement or generate community complaints.

- Air Quality Management Plan
- Sediment Control and Water Quality Management Plan
- Noise Management Plan
- Visual Amenity Management Plan
- Storage and Handling of Chemicals Management Plan
- Heritage Management Plan
- Waste Management Plan
- Transport Code of Conduct

The following management plans identify the regulatory requirements associated with the significant environmental issues of this project and specify the actions required to manage the environmental risks and comply with these regulatory requirements.

15.1 Air Quality Management Plan

Element	Management Plan																																	
Potential Impacts	<ul style="list-style-type: none"> Release of above-guideline-levels of air pollutants, e.g. NO₂ and Greenhouse gases. Odour from power station operations affecting the surrounding community Dust and particulates from stacks, vehicle usage, and post-construction establishment of vegetation affecting the surrounding community 																																	
Sources	<ul style="list-style-type: none"> Power station stacks Emergency Generators (Diesel) Fire Fighting Pump (Diesel) Dust off Roads Dust off former construction areas 																																	
Objective	<ul style="list-style-type: none"> To ensure emissions are within the Air Quality limits contained in the DoP Development Consent and DECC Site Licence. To ensure that odour resulting from the power station's operations is minimised To ensure that dust resulting from the power station's operations is minimised 																																	
Actions/Controls	<p><i>Stack Emissions:</i></p> <p><i>Emission Characteristics at full load per Unit-</i></p> <table border="1"> <thead> <tr> <th><i>Parameter</i></th> <th><i>Units</i></th> <th><i>Emissions per Unit</i></th> </tr> </thead> <tbody> <tr> <td><i>No Of Units operating</i></td> <td>-</td> <td>4</td> </tr> <tr> <td><i>Fuel</i></td> <td>-</td> <td>Gas</td> </tr> <tr> <td><i>Exit Velocity</i></td> <td>m/s</td> <td>40.6</td> </tr> <tr> <td><i>Temperature</i></td> <td>°C</td> <td>552</td> </tr> <tr> <td><i>NO_x - Concentration</i></td> <td><i>Ppmvd @ 15%O₂</i></td> <td>25</td> </tr> <tr> <td>- <i>Emission rate</i></td> <td><i>g/s</i></td> <td>21</td> </tr> <tr> <td>- <i>No₂/NO_x ratio</i></td> <td></td> <td>0.1</td> </tr> <tr> <td><i>CO emission rate</i></td> <td><i>g/s</i></td> <td>5.1</td> </tr> <tr> <td><i>SO₂</i></td> <td><i>g/s</i></td> <td>0.7</td> </tr> <tr> <td><i>PM₁₀</i></td> <td><i>g/s</i></td> <td>4.1</td> </tr> </tbody> </table> <p>Efficient plant operation and meeting regulatory stack emissions will be undertaken on-site by:</p> <p><i>Design & Commissioning -</i></p> <ul style="list-style-type: none"> The power station has been modelled and designed so as to ensure stack 	<i>Parameter</i>	<i>Units</i>	<i>Emissions per Unit</i>	<i>No Of Units operating</i>	-	4	<i>Fuel</i>	-	Gas	<i>Exit Velocity</i>	m/s	40.6	<i>Temperature</i>	°C	552	<i>NO_x - Concentration</i>	<i>Ppmvd @ 15%O₂</i>	25	- <i>Emission rate</i>	<i>g/s</i>	21	- <i>No₂/NO_x ratio</i>		0.1	<i>CO emission rate</i>	<i>g/s</i>	5.1	<i>SO₂</i>	<i>g/s</i>	0.7	<i>PM₁₀</i>	<i>g/s</i>	4.1
<i>Parameter</i>	<i>Units</i>	<i>Emissions per Unit</i>																																
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<i>PM₁₀</i>	<i>g/s</i>	4.1																																

	<p>emissions and air quality falls within the regulatory levels.</p> <ul style="list-style-type: none"> • The power station has been designed and constructed so release of emissions from the turbine stacks will only be released into the atmosphere:- <ol style="list-style-type: none"> a. from the top of the stacks at 35 metres in height; and b. is directed vertically upwards without any impedance or hindrance. • The Manufacturers Commissioning Engineers will complete the testing and tuning program on the turbines before operational handover to ensure efficient operation of plant. <p><i>Management Controls -</i></p> <ul style="list-style-type: none"> • The employment of suitably qualified personnel is managed through Origin Energy HR Management Procedures; • Appropriate training and demonstrated Operator competence in operations of BOP & Turbine operation. The site maintains an Operations Training Program and Training Register. Operator Training is detailed in the <i>Site Operation Plan</i> and Section 7.4 (Operator Training) of this EMP. • BOP & Turbine <i>Operating, Maintenance and Calibration Manuals, Procedures & Schedules</i> <p><i>Operational Controls -</i></p> <ul style="list-style-type: none"> • The turbine manufacturers have guaranteed emissions levels of the Units to meet regulatory emission limits at operation above 50% load. To ensure operational efficiency the following actions will occur: <ul style="list-style-type: none"> • Control set points will be implemented to ensure base operations are greater than 50% unit load. • The Units operate on an auto start up and auto shut down sequence at all times to ensure the fastest, most efficient plant starting and shut downs; • Start-ups will occur in 'Diffuser Mode' which is a more stable process but higher NOx emissions, but the auto start up sequence will move the plant to 'Pre-Mix Mode' which will then run the plant during normal operations above 50% load for efficient operation and reduced NOx emissions. • 'Pre-Mix Mode' is when air and gas is premixed before combustion to give a more efficient combustion. • For shut downs, the operating system will automatically move the plant from 'Pre-Mix Mode' back to 'Diffuser Mode' for fastest and most efficient shut downs. • Plant high NOx emission alarms are fitted to operational control panel for each Unit. • <i>Manufacturers Plant Operating Procedures & Trouble Shooting Guides</i>
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	<p><i>Diesel Emergency Generators & Fire Fighting Pump:</i></p> <p>The diesel Emergency Generators and Fire Fighting Pump are expected to operate only in emergencies, for maintenance or for testing. The emissions from these diesel motors are considered insignificant due to their size and infrequent operation. Specific controls to reduce the emissions from these include:</p> <ul style="list-style-type: none"> • <i>BOP Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules</i> • Operations Training Program and Training Register. Operator Training is detailed in the <i>Site Operation Plan</i> and Section 7.4 (Operator Training) of this EMP. <p><i>Odour:</i></p> <ul style="list-style-type: none"> • On-site odour will be minimised by the successful implementation of the Site Waste Management Plan as detailed in Section 15.7 of this EMP. <p><i>Dust:</i></p> <p>Dust management will be undertaken on-site by:</p> <p><i>Design -</i></p> <ul style="list-style-type: none"> • The power station has been built so all access roads are sealed, and all exposed areas have been covered with blue stone or road base material. Within the site internal security fence there are no exposed soil areas. <p><i>Landscape Plan -</i></p> <ul style="list-style-type: none"> • Rehabilitation of construction areas outside of the site security fence will be undertaken by the successful implementation of the Site Landscaping Plan as detailed in Section 15.7 Visual Amenity Management Plan of this EMP.
<p>Maintenance</p>	<ul style="list-style-type: none"> • Turbine equipment will be performance tested, tuned and emission guarantees confirmed during the projects commissioning phase to ensure that the manufacturer’s standard has been delivered. • All power station equipment will be maintained according to <i>Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules</i> • Roads will be sealed and maintained to ensure that dust from road or vehicle sources will not exceed prescribe levels. • Landscape maintenance will be as detailed in Section 15.7 Visual Amenity Management Plan of this EMP.
<p>Performance Indicators</p>	<ul style="list-style-type: none"> • NOx emissions will not exceed the statutory levels prescribed in the Development Consent and DECC Licence. • To ensure odour is not generated on-site and the local community is not affected by odours.

<p>Monitoring</p>	<ul style="list-style-type: none"> • A Continuous Emission Monitoring System (CEMS) is installed on each Unit to continuously monitor for NO_x. • Stack monitoring will be undertaken as per Section 12 Environmental Monitoring of this EMP. • Within 90 days of operation, a comprehensive air quality impact assessment will be undertaken, as per Section 13.4 Statutory Environmental Reporting, using actual air emission data collected. The data collected from the stack monitoring will be reviewed and verified against - <ul style="list-style-type: none"> a. predicted modeling present in the sites EIS - Appendix 5 Air Quality & Greenhouse Assessment b. The impact assessment criteria detailed in Approved methods and Guidance for the Sampling and Analysis of Air pollutants in NSW (DECC, 2001) c. Details of any entries in the sites Complaints Register relating to air quality impacts. • Dust (visual monitoring) & odour (quantitative assessment by site personnel) monitoring will be undertaken by informal daily checks and formal weekly checklists. • A complaints register will be held, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.
<p>Corrective Action / Reporting</p>	<p>Stack Emissions:</p> <p>If emission limits are exceeded during plant operation the following will occur:</p> <ul style="list-style-type: none"> • Operators will initially follow the '<i>Trouble Shooting Guide</i>' detailed in the Manufacturers Operating Manual. This guide that the operators have been trained in will allow operators to follow a predetermined checklist & inspection program to fault find plant issues to get the Unit(s) back within specification; • At the completion of the <i>Trouble Shooting Guide</i>, if high emission levels are still being experienced, the Operators will be required to determine if the high emission level is an actual plant fault or a fault in the CEMS. • If the fault is a plant fault then the Unit(s) will be shut down immediately and the site Plant Superintendant will organise professional assistance to come to site to undertake the required work to bring the Unit(s) back within emission specification. • If the fault is a CEMS fault, then the affected Unit(s) will shut down until the CEMS unit(s) is corrected. [The site Plant Superintendant will develop a NO_x emission calculation procedure to be approved by the DECC for instances when the CEMS system is at fault not the operating plant. The procedure will allow the plant to be continued to be operated with a faulty CEMS system and NO_x emissions to be calculated from performance data recorded during plant operation. This procedure will only be implemented after DECC approval.] • No response mechanism has been developed for potential elevated air impacts on surrounding land uses as a consequence of meteorological conditions. This is because as detailed above, at all times the fastest, most efficient plant starting and shut downs will occur and the plant will always operate above 50% load. In these operating conditions, the plant consistently runs with stack emissions

above 500°C and high velocity stack emissions. During low wind and temperature inversion meteorological conditions - emission dispersion is obtained by vertical dispersion and in light to windy conditions - a combination of vertical and horizontal dispersion will occur. Under all meteorological conditions there will not be a buildup of air emissions that could impact on surrounding land uses. This scenario is supported by modeling undertaken during the Air Quality & Greenhouse Gas Assessment undertaken as part of the EIS for the project.

- The site Plant Superintendent will report on compliance with this EMP as required by the administering authorities.

15.2 Sediment Control and Water Management Plan

Element	Management Plan																							
Potential Impacts	<ul style="list-style-type: none"> Waste water entering surrounding system. The surrounding system is undulating farm land. The farming practices in the area are cattle & sheep grazing and annual cropping. The nearest stream/creek is approximately 3km from site. This creek is not a permanent flowing creek but a small creek that flows only in storm events. Inefficient irrigation practices leading to land degradation or irrigation water leaving site. Chemical spills/oily waste contaminating stormwater pond or potentially leaving the site. Soil erosion on-site leading to land degradation and potential sediment load leaving site. 																							
Sources	<table border="1"> <thead> <tr> <th>Source</th> <th>Expected Volumes /Annum</th> <th>Characteristics</th> </tr> </thead> <tbody> <tr> <td>Stormwater</td> <td>Up to 20 mega litres per annum in the wettest year in 10.</td> <td>Suspended solids - <100mg/l Hydrocarbons - <10mg/l Conductivity - <300mg/l</td> </tr> <tr> <td>Demin</td> <td>1680 m³</td> <td>Salt load of 11,160 kg/annum or 30.6 kg/day</td> </tr> <tr> <td>Oil Water separator</td> <td>Separator can handle 10,000 litres per hour</td> <td>Discharge of clean water at <10 mg/l of oil.</td> </tr> <tr> <td>Rainfall Runoff of admin building</td> <td>-</td> <td>Clean water suitable for domestic reuse</td> </tr> <tr> <td>Septic</td> <td>Sized for 10 person full time use.</td> <td>Suitable for transpiration trench disposal only</td> </tr> <tr> <td>exposed soil areas during landscaping works</td> <td>-</td> <td>High suspended solids content.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Figure 3 Site Waste Waters below and site layout diagram in Appendix 4 illustrates the sources of both clean and dirty waste waters on-site. Clean waste water is uncontaminated storm water collected for reuse and dirty waste water is contaminated stormwater or process water for on-site cleanup or off-site disposal. 			Source	Expected Volumes /Annum	Characteristics	Stormwater	Up to 20 mega litres per annum in the wettest year in 10.	Suspended solids - <100mg/l Hydrocarbons - <10mg/l Conductivity - <300mg/l	Demin	1680 m ³	Salt load of 11,160 kg/annum or 30.6 kg/day	Oil Water separator	Separator can handle 10,000 litres per hour	Discharge of clean water at <10 mg/l of oil.	Rainfall Runoff of admin building	-	Clean water suitable for domestic reuse	Septic	Sized for 10 person full time use.	Suitable for transpiration trench disposal only	exposed soil areas during landscaping works	-	High suspended solids content.
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Rainfall Runoff of admin building	-	Clean water suitable for domestic reuse																						
Septic	Sized for 10 person full time use.	Suitable for transpiration trench disposal only																						
exposed soil areas during landscaping works	-	High suspended solids content.																						

<p>Objective</p>	<ul style="list-style-type: none"> To minimise erosion of sediment on site during establishment of vegetation. To provide permanent erosion and sediment control measures where required. To ensure the design and construction of stormwater and process water works are appropriate and maintained during operations. To minimise the risk of contamination of surface water, groundwater and stormwater through leaks or spills of chemicals / polluting substances during the operation of the power station. To achieve objectives detailed in the site Water Management Strategy document submitted to and approved during the development approval process by the DoP and DECC.
<p>Actions/Controls</p>	<p><i>Sediment Control:</i> Sediment control will be undertaken on-site by:</p> <p><i>Design -</i></p> <ul style="list-style-type: none"> The power station has been built so all access roads are sealed, and all exposed areas have been covered with blue stone or road base material. Within the site internal security fence there are no exposed soil areas. <p><i>Landscape Plan -</i></p> <ul style="list-style-type: none"> Rehabilitation of construction areas outside of the site security fence will be undertaken by the successful implementation of the Site Landscaping Plan as detailed in Section 15.7 Visual Amenity Management Plan of this EMP. Temporary sedimentation control barriers will be installed and maintained until areas within the Landscape Plan have been stabilized to limit soil erosion. Temporary sedimentation traps will be installed as per Wagga Wagga City Council (WWCC) Stormwater Management Guidelines and maintained such that they will be cleaned out when the traps are at 50% capacity. The temporary traps will be removed after site stabilization. Disturbance of vegetation and topsoil will be kept to a practical minimum. Movement of vehicles on and off site is to be through approved access points <i>only</i> <p><i>Oil/Chemical Spill Control:</i> Oil/chemical spill control will be undertaken on-site by:</p> <p><i>Design -</i></p> <ul style="list-style-type: none"> The power station has been designed so all lube oil, diesel fuel and transformer oil storage tanks are contained within bunded areas The site has a dedicated oil/chemical store that has its own bund and is fully enclosed; All areas within the turbine enclosure drain to the oil/water separator collection pit A oil/water collection pit and oil/water separator has been installed on-site to collect and treat all stormwater/spills from -

- Oil/Chemical store
- Maintenance work shop
- Transformer bunds
- Within Turbine enclosures.

Operations -

- The storage of flammable and combustible liquids such as fuels and oils shall be undertaken as per Section 15.5 Storage and Handling of Oils/Chemicals Management Plan of this EMP.
- Site personnel will be trained in appropriate spill response strategies and spill kit use using the OEPU Spill Response & Cleanup Procedure.
- Ensure spill kits are available on site to clean up spills and leaks.
- Oil water separator will be operated as per manufacturer's guidelines.

Evaporation Dam Control:

Demin waste water will be controlled by:

Design -

- The sites demineralisation plant is a reverse osmosis plant which is designed to remove dissolved solids out of the raw water supply.
- The demin plant has been designed to produce 20% waste water from raw water inputs.
- A site water balance has been undertaken and documented in the site Water Management Strategy document submitted to and approved during the development approval process by the DoP and DECC.
- Two demineralisation waste water evaporation ponds have been sized and constructed onsite (a third pond will be constructed before the last Unit becomes operational). The ponds have been sized taking into account demin waste water produced and evaporation capacity within the Wagga Wagga region. The ponds have been fully lined with a 5mm poly liner.
- Waste water from the demin is piped directly to the demin evaporation ponds.

Operations -

- The site demin plant will be operated as per Manufacturers *Operating Procedures and Manual*. All personnel working within the demin plant will be fully trained in its operation and troubleshooting guide.
- The demin evaporation ponds will be filled as per site *Operating Procedures*.
- Water from the demin evaporation ponds will not be allowed to flow into the sites Stormwater Pond or flow uncontrolled off the site;
- The Environmental Coordinator will manage the scheduling of cleanouts of the evaporation ponds.
- Disposal of dried out dissolved solids will be as per Section 15.7 Waste Management Plan of this EMP.

Stormwater Control:

Stormwater control will be undertaken on-site by:

Design -

- The stormwater system on-site is composed of:
 - A diversion bank around the inner security fence to ensure stormwater is diverted around the power station area to minimise the amount of stormwater collected on-site.
 - A series of stormwater collection pits and underground stormwater mains to collect and transport stormwater to the sites stormwater pond. All clean stormwater from the site will be directed to the site stormwater pond.
 - Stormwater collected of the sites roofs (except administration building) is directed to the sites stormwater pond.
 - Stormwater collection pond. The pond size is 15 mega-litres. The pond size was calculated after a site water balance was undertaken and documented in site Water Management Strategy document. The stormwater pond is designed to hold the amount of stormwater generated off the site in the wettest nine years in ten (i.e. 90th percentile rainfall figures for Wagga Wagga). The stormwater pond is fully lined with a 5mm poly liner.
 - Figure 3 Site Waste Waters below, illustrates the sources of stormwater from the site (within the security fence), direction of flow and the final stormwater collection pond. Appendix 4 Site Water Drainage and Discharge Off-Site Points, details stormwater direction and off-site discharge for the landscaping and external paddock areas of the site as a whole.

Operation -

- The site stormwater pond will be managed so that it will be empty before the start of each winter (wetter part of year) so that there is full storage capacity available to collect and hold stormwater during the wetter period of the year when stormwater reuse is restricted.
- The collected stormwater will be reused as per the Irrigation Plan detailed below.

Irrigation System:

Stormwater reuse will be undertaken by irrigation of on-site landscaping areas and on-site pasture irrigation.

Irrigation system control will be undertaken on-site by:

Design -

- The sites irrigation system has been designed to fully re-use the sites collected stormwater.
- The irrigation system design supports the site On-site Landscape Plan detailed in Section 15.4 Visual Management Plan of this EMP. The irrigation system will provide water to the landscape plantings.
- Excess water above the requirements of the landscape plantings will be

	<p>irrigated on to pasture on the west side of the power station.</p> <ul style="list-style-type: none"> The amount of collected stormwater required to be re-used through the sites irrigation system is 20 mega-litres per annum (i.e. 15ML collected during the 90th percentile rainfall period when rainfall exceeds evaporation + 5ML collected during the irrigation period). The irrigation total was calculated after a site water balance was undertaken and documented in site Water Management Strategy document. The actual irrigation capacity of the irrigation system is 27.3 ML to ensure overcapacity of irrigation availability. The on-site irrigation design and layout is detailed in Appendix 2. <p>Operation -</p> <ul style="list-style-type: none"> The irrigation system is a fully automated process. The irrigation system runs off an automatic irrigation controller. The controller will be reset each month to adjust the irrigation rate to meet the changing weather conditions from autumn into summer and late summer. The irrigation controller will be reset each month by the site Environmental Coordinator. An irrigation schedule has been developed for the site and is detailed below in Table 1 Irrigation Scheduling. The irrigation system operates an automatic rainfall irrigation shut off system. The automatic shut off system consist of an electronic rainfall detector that measures rainfall intensity and will shut off the irrigation system until conditions are again suitable to recommence watering. Pasture growth in the pasture irrigation area will be managed by stock grazing. The site Plant Superintendant will enter into an agreement with a local farmer to lease the area west & north of the power station for stock grazing. The agreement reached will ensure that over grazing is avoided to ensure bare soil is not exposed. <p>Administration Roof Stormwater Tank Collection and Reuse:</p> <p>Stormwater is collected off the site Administration Building roof. The collected water is stored in a 10,000 litre storage tank and is reused in the buildings toilets as flush water.</p>
<p>Maintenance</p>	<p>Sediment Control:</p> <ul style="list-style-type: none"> Temporary sediment traps to be cleaned out when traps reach 50% capacity. Landscaping trees and grasses stabilised areas to be replaced/replanted as required. <p>Oil Water Separator:</p> <ul style="list-style-type: none"> Oil water separator will be maintained and repaired as per Manufacturers <i>Operating Manual</i>. <p>Evaporation Pond:</p> <ul style="list-style-type: none"> Evaporation pond will be cleaned out as required and demin wastes to be removed from site as per Section 15.7 Waste Management Plan of this EMP. Repairs to pond poly liner to occur immediately if tear occurs in liner. <p>Stormwater Collection Pond:</p> <ul style="list-style-type: none"> Repairs to pond poly liner to occur immediately if tear occurs in liner.

	<p>Irrigation System:</p> <ul style="list-style-type: none"> • Irrigation components maintained and repaired as per <i>Manufacturers Operating Manual</i>. • Any system failures, the irrigation system is to be shut down immediately and repairs made immediately. 										
<p>Performance Indicators</p>	<ul style="list-style-type: none"> • Surface waters are not impacted upon by contaminated stormwater leaving the site 										
<p>Monitoring</p>	<ul style="list-style-type: none"> • Monitoring of the areas identified in this management plan will be undertaken as per Section 12 Environmental Monitoring of this EMP. This monitoring also includes irrigation water quality monitoring. • Irrigation water from the Storm water Pond will be sampled and analyzed every 60 Days. The frequency of sampling is based on the combination of the consistent nature of stormwater collection off the site, weekly monitoring of the stormwater pond (mainly looking for oil on pond surface) and reporting protocols and procedures the site has in place for responding to on-site chemical spills. Stormwater pond sampling will be required immediately after a chemical spill if spill enters the stormwater pond. • Monitoring Criteria <table border="1" data-bbox="540 919 1487 1232"> <thead> <tr> <th>Criteria</th> <th>Maximum Concentration</th> </tr> </thead> <tbody> <tr> <td>Conductivity</td> <td>300 uS/cm</td> </tr> <tr> <td>pH</td> <td>7 - 8</td> </tr> <tr> <td>Total Suspended Solids</td> <td>100 ppm</td> </tr> <tr> <td>Hydrocarbons</td> <td>No Visual oil - <10mg/l</td> </tr> </tbody> </table> • Irrigation monitoring (equipment and reuse area) will also be undertaken by informal daily checks and formal weekly checklists. • Stormwater pond, evaporation pond, and sedimentation controls will be inspected after each rainfall event. • A complaints register will be held, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon. 	Criteria	Maximum Concentration	Conductivity	300 uS/cm	pH	7 - 8	Total Suspended Solids	100 ppm	Hydrocarbons	No Visual oil - <10mg/l
Criteria	Maximum Concentration										
Conductivity	300 uS/cm										
pH	7 - 8										
Total Suspended Solids	100 ppm										
Hydrocarbons	No Visual oil - <10mg/l										
<p>Corrective Action / Reporting</p>	<ul style="list-style-type: none"> • Evaporation Ponds Reaching Capacity: Demin water will not be pumped to evaporation ponds at any time if the minimum freeboard requirements will be violated. Demin water production will be ceased on site and as such flows to the demin pond will stop if the freeboard requirements are reached. The Plant Superintendant will immediately utilise a contract pumping truck to remove and dispose of the excess waste water in the evaporation pond. Disposal of the pumped waste water will be undertaken as per Section 15.7 Waste Management Plan. 										

	<ul style="list-style-type: none"> <p>• Irrigation System Failure:</p> <p>Short term failure of the irrigation system will not be a critical issue to the operation of the plant. The irrigation system is comprised of readily available or interchangeable parts/equipment so extended delays is not anticipated in regard to failure of the irrigation system. In the event of irrigation failure, the Plant Superintendant will be responsible for managing the rectification works using either internal maintenance personnel or external contractors.</p> <p>• Oil Water Separator Failure:</p> <p>The Oil Water Separator system is comprised of a 750,000 litre concrete storage pit, sump pump and Oil Water Separator.</p> <p>Short term failure of the Oil Water Separator will not be a critical issue to the operation of the plant because -</p> <ul style="list-style-type: none"> ○ The oil water collection pit has been sized so that is of sufficient size to hold bund discharge water from rain fall events for up to 5 days. ○ The Oil Water Separator has no moving parts and consists of a series of screens and baffles. As long the separator is well maintained and screens cleaned regularly as per the maintenance program the separator should be relatively issue free. ○ The oil water pit pump is not a specialised pump and is comprised of readily available or interchangeable parts/equipment so extended delays are not anticipated in regard to failure of the Oil Water Sump Pump. <p>In the event of the Oil Water Separator failure, the Plant Superintendant will be responsible for managing the rectification works using either internal maintenance personnel or external contractors.</p> <p>• Oil/Chemical Leaks:</p> <p>Corrective Action is required to be undertaken immediately if a complaint is made, or potential/actual leak or spill of polluting substance identified. This includes stopping the contaminant from further escaping, cleaning up the effected environment as much as practically possible and taking preventative measures.</p> <p>• Stormwater Pond Water Out of Spec for Irrigation:</p> <p>In the event of Stormwater Pond contamination, the actions detailed in the site <i>Chemical & Oil Spill Procedure</i> will be followed. Incident reporting investigation and corrective actions will follow the process detailed in Section 13.0 Environmental Reporting of this EMP. Irrigation re-use of the stormwater in the pond will be ceased immediately and will not recommence until clean up activities have been completed.</p> <p>In the event that water quality at the monitoring locations is found to fall outside of Maximum Concentration levels (detailed above), the source of the deviation will be investigated and measures taken to correct the issue as per Section 13.0 Environmental Reporting of this EMP. Irrigation re-use of the stormwater in the pond will be ceased immediately and will not recommence until rectification activities have been completed.</p>
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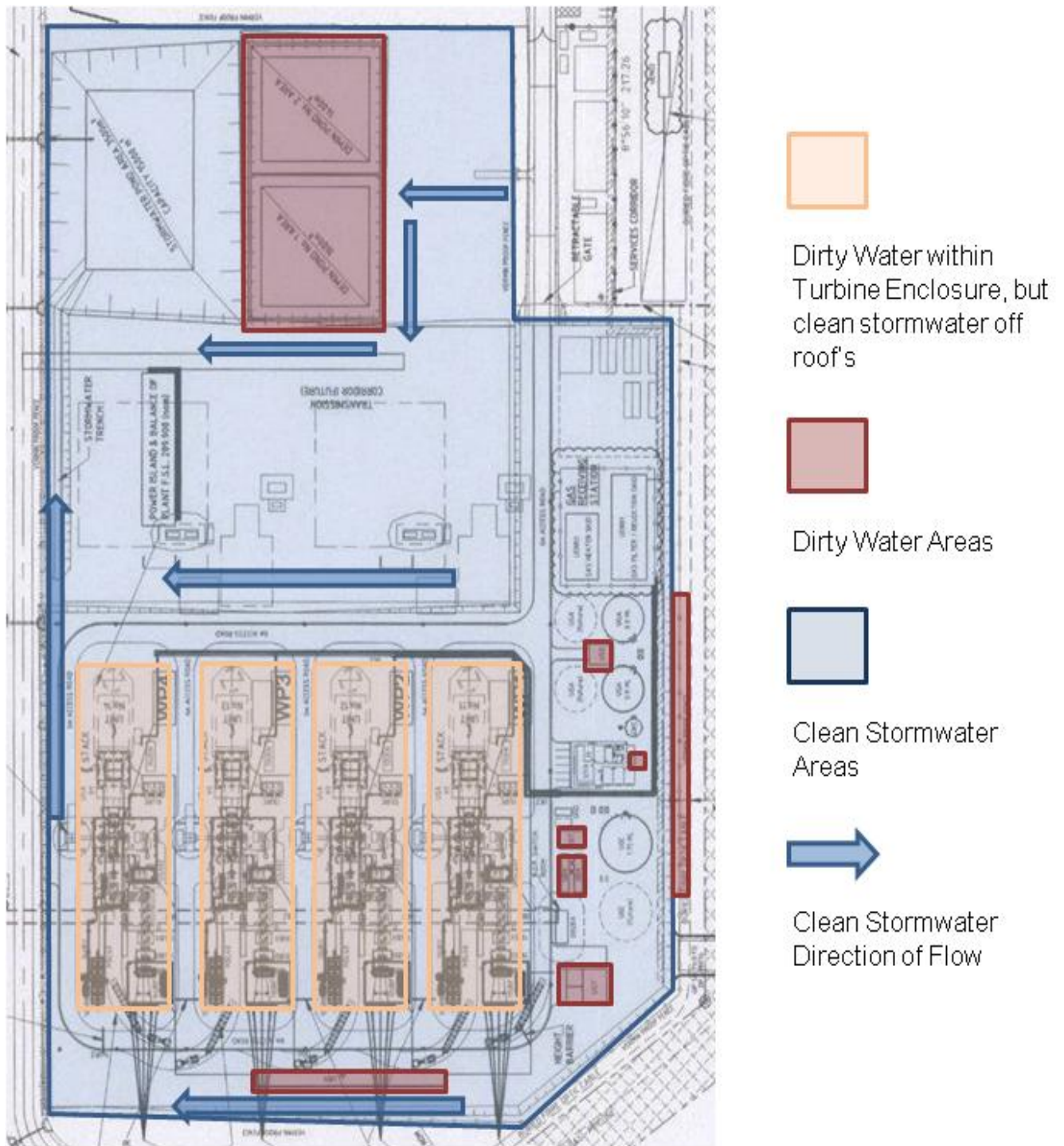


Figure 3 - Site Waste Water Sources

Western Mound					
Planting Dimensions		Evaporation		Irrigation Hours/Month Required	
Width	50 m	October	146 mm	7.2 Hrs/Mth	1.8 Hrs/Week
Length	417 m	November	213 mm	10.5 Hrs/Mth	2.6 Hrs/Week
Irrigation Type:		December	295 mm	14.5 Hrs/Mth	3.6 Hrs/Week
External Drippers		January	310 mm	15.2 Hrs/Mth	3.8 Hrs/Week
Dripper Spacing	2.5 m	February	263 mm	12.9 Hrs/Mth	3.2 Hrs/Week
Line Spacing:	5 m	March	214 mm	10.5 Hrs/Mth	2.6 Hrs/Week
Number of Rows	13	Total	1441 mm		
Dripper Output:	8 l/hr	Water Application (mm)		Evaporation Correction Factor	
Drippers per Tree	1	Dripper Radius	0.5 m	0.5	1.23 Megalitres
Drippers per Line:	167	Surface Area	0.785 m ²		
Total Drippers:	2168	Water application	10.19 mm/hr		
Water Output per Line:	1334 l/hr				
Total Water Output:	289 l/min				
Total Water Output:	17,347 l/hr				

Southern Mound					
Planting Dimensions		Evaporation		Irrigation Hours/Month Required	
Width	80 m	October	146 mm	7.2 Hrs/Mth	1.8 Hrs/Week
Length	173 m	November	213 mm	10.5 Hrs/Mth	2.6 Hrs/Week
Irrigation Type:		December	295 mm	14.5 Hrs/Mth	3.6 Hrs/Week
External Drippers		January	310 mm	15.2 Hrs/Mth	3.8 Hrs/Week
Dripper Spacing	2.5 m	February	263 mm	12.9 Hrs/Mth	3.2 Hrs/Week
Line Spacing:	5 m	March	214 mm	10.5 Hrs/Mth	2.6 Hrs/Week
Number of Rows	26	Total	1441 mm		
Dripper Output:	8 l/hr	Water Application (mm)		Evaporation Correction Factor	
Drippers per Tree	1	Dripper Radius	0.5 m	0.5	0.59 Megalitres
Drippers per Line:	-	Surface Area	0.785 m ²		
Total Drippers:	1044	Water application	10.19 mm/hr		
Water Output per Line:	- l/hr				
Total Water Output:	139 l/min				
Total Water Output:	8,352 l/hr				

Switch Yard Area					
Planting Dimensions - Triangle		Evaporation		Irrigation Hours/Month Required	
Width	60 m	October	146 mm	7.2 Hrs/Mth	1.8 Hrs/Week
Length	90 m	November	213 mm	10.5 Hrs/Mth	2.6 Hrs/Week
Irrigation Type:		December	295 mm	14.5 Hrs/Mth	3.6 Hrs/Week
External Drippers		January	310 mm	15.2 Hrs/Mth	3.8 Hrs/Week
Dripper Spacing	2.5 m	February	263 mm	12.9 Hrs/Mth	3.2 Hrs/Week
Line Spacing:	5 m	March	214 mm	10.5 Hrs/Mth	2.6 Hrs/Week
Number of Rows	12	Total	1441 mm		
Dripper Output:	8 l/hr	Water Application (mm)		Evaporation Correction Factor	
Drippers per Tree	1	Dripper Radius	0.5 m	0.5	0.03 Megalitres
Total Drippers:	50	Surface Area	0.785 m ²		
Total Water Output:	7 l/hr	Water application	10.19 mm/hr		
Total Water Output:	400 l/hr				

Pasture Irrigation Area					
Dimensions		Evaporation		Irrigation Hours/Month Required	
Width	105 m	October	146 mm	14.1 Hrs/Mth	3.5 Hrs/Week
Length	165 m	November	213 mm	20.5 Hrs/Mth	5.1 Hrs/Week
Irrigation Type:		December	295 mm	28.4 Hrs/Mth	7.1 Hrs/Week
Turf Sprinklers		January	310 mm	29.8 Hrs/Mth	7.5 Hrs/Week
Sprinkler Spacing	15 m	February	263 mm	25.3 Hrs/Mth	6.3 Hrs/Week
Number of Rows	10,000	March	214 mm	20.6 Hrs/Mth	5.1 Hrs/Week
Number per Row	6,000	Total	1441 mm		
Number of Sprinklers	60	Water Application (mm)		Evaporation Correction Factor	
Output per Sprinkler:	50 l/min	Surface Area	17325 m ²	1.0	24.97 Megalitres
Output per Sprinkler:	3000 l/hr	Surface Area	1.7325 hectares		
Total Water Output:	300,000 l/hr	Water application	10.39 mm/hr		
Total Water Output:	180,000 l/hr				

Total Water Use per Annum	26.78 Megalitres
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Table 1 - Site Stormwater Irrigation Schedule

15.3 Noise Management Plan

Element	Management Plan
Potential Impacts	<ul style="list-style-type: none"> • Nuisance noise from maintenance activities affecting the surrounding community • Nuisance noise from the operations affecting the surrounding community • Transport noise affecting the surrounding community
Sources	<ul style="list-style-type: none"> • Staff transport and equipment transport • Turbine operation • Diesel generator • Maintenance activities • Fire pump house
Objective	<ul style="list-style-type: none"> • To minimise noise impacts on the surrounding community from the power station's operations • To comply with regulatory noise levels detailed in the sites Development Consent and DECC Licence.
Actions/Controls	<p><i>Turbine Operation:</i></p> <p>Efficient plant operation and meeting regulatory noise emissions will be undertaken on-site by:</p> <p><i>Design & Commissioning -</i></p> <ul style="list-style-type: none"> • The power station has been modelled and designed so as to ensure that plant noise emissions meets the regulatory levels. • The power station has been designed and constructed to minimise plant noise emissions from the BOP & turbine operation by:- <ol style="list-style-type: none"> a. The turbine and generator housed in noise controlling building; b. Diffuser and bottom half of stack enclosed in noise controlling structure; c. Additional baffles added inside stack to reduce stack emission noise; <ul style="list-style-type: none"> • Noise insulation surrounding turbine casings, and d. Insulated and sealing access doors into turbine building. • The Manufacturers Commissioning Engineers will undertake a testing and tuning program before operational handover to ensure efficient operation of plant. • The Manufacturers Commissioning Engineers will undertake noise guarantee testing and proving before plant handover for commercial operation. <p><i>Management Controls -</i></p> <ul style="list-style-type: none"> • Appropriate training and demonstrated Operator competence in operations of BOP & Turbine operation. The site maintains an Operations Training Program and Training Register. Operator Training is detailed in the Site Operation Plan

	<p>and Section 7.4 (Operator Training) of this EMP.</p> <ul style="list-style-type: none"> • <i>BOP & Turbine Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules</i> to ensure all site plant is maintained for optimal performance and reduced noise levels. • Site induction to cover site noise management issues & procedures • The site Plant Superintendant having clear and open communication channels with near neighbours and the Uranquinty community by the on-going implementation of the Community Participation Program as detailed in Section 9.0 of this EMP. <p>Operational Controls -</p> <ul style="list-style-type: none"> • The Units operate on an auto start up and auto shut down sequence at all times to ensure the fastest, most efficient plant starting and shut downs; • The plant will operate under specific Operational Procedures developed on-site specifically to manage noise emissions from the site. These procedures include operating checklists, and ensuring all doors, vents, louvers are closed as required during operation to limit the releases of noise from the generator/turbine enclosures. • Running all Plant as per <i>Operational Procedures</i>.
	<p>Transport Noise:</p> <ul style="list-style-type: none"> • Transport noise impacts from, personnel car movements, site deliveries and truck movements will be minimised by the successful implementation of the Transport Code of Conduct Plan as detailed in Section 15.9 of this EMP.
	<p>Maintenance Noise:</p> <p>Ensuring maintenance activities noise levels are below regulatory noise emissions will be undertaken on-site by:</p> <ul style="list-style-type: none"> • Programming routine maintenance activities so they occur on weekdays during normal working hours; • Ensuring all operators or contracted maintenance personnel working on plant on weekends, during evenings or at nighttime understand the noise management issues on-site and complete their work with no noise impacts on the sites near neighbours. • The site Plant Superintendant communicating to the local community through the Community Participation Program any upcoming major outages or maintenance programs that may mean new on-site activities, increased transport to site or any additional planned noise sources.
<p>Maintenance</p>	<ul style="list-style-type: none"> • All plant and equipment, including vehicles, will be properly maintained in order to minimise noise generation • All power station equipment will be maintained according to <i>Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules</i>.
<p>Performance Indicators</p>	<ul style="list-style-type: none"> • No complaints concerning noise • Compliance with annual noise monitoring
<p>Monitoring</p>	<ul style="list-style-type: none"> • Informal observation of on-site noise levels by site Plant Superintendant,

	<p>Environmental Coordinator and Plant Operators.</p> <ul style="list-style-type: none"> • Noise monitoring will be undertaken - <ol style="list-style-type: none"> a. Initially during performance testing of the power station. The tests will occur within 90 days of commencement of operation and a report submitted to the DoP. b. Annually and the results submitted to DoP in the Annual Performance Report. The Environmental Coordinator in association with an external acoustic consultant will develop a Noise Monitoring Procedure for the site. The procedure will detail monitoring locations and methodology. Annual noise testing will then be undertaken under as per the Noise Monitoring Procedure. c. As required after community complaint to site. Monitoring will occur as per the Corrective Actions section of this Management Plan. Results will be submitted to DoP in the Annual Performance Report, and DECC in the DECC Annual Return. • A complaints register will be held, in which any complaints from the community will be logged. • Complaints will be investigated and, if appropriate, acted upon as per the Corrective Action/Reporting Section below.
<p>Corrective Action / Reporting</p>	<ul style="list-style-type: none"> • Corrective action is required to be undertaken immediately after a complaint is made or nonconformance identified. • Complaints receipt and corrective action will be undertaken as per Section 8.0 Complaints Handling of this EMP. • The site Plant Superintendent will report on compliance with this EMP as required by the administering authorities. <p><i>Additional Action Required for Noise Complaints from Residences - Pine Grove, The Wardrobe and Wallace:</i></p> <p>Following an operational noise complaint from one of these residences, as per <i>DoP Notice of Modification - 06/07/07</i>, the following will occur -</p> <ul style="list-style-type: none"> • Within one week, the site Plant Superintendent will organise noise monitoring to occur for two weeks at the affected residence. • If noise levels are exceeded, the site Plant Superintendent will organise a suitably qualified independent acoustic professional to prepare in consultation with the property owner a Noise Mitigation Design Report. The report is to be completed within 2 months of the completion of the monitoring. • Within one month of completing the report, OEUP is to have entered into an agreement with the land holder to implement suitable noise mitigation measures.

15.4 Visual Management Plan

Element	Management Plan						
Potential Impacts	<ul style="list-style-type: none"> Negative visual impacts on amenity for the surrounding community. 						
Sources	<ul style="list-style-type: none"> Visual impact of Power station and Switch Yard Roadways On-site lighting causing off-site impacts 						
Objective	<ul style="list-style-type: none"> To minimise visual impacts on the Immediate, Middle and Broad view distances To ensure on-site lighting does not affect near neighbours 						
Actions/Controls	<p><i>Site Design:</i></p> <ul style="list-style-type: none"> Use of low reflective materials on buildings Use of colours on buildings and plant that are neutrally toned and suit the surrounding landscape. <p><i>On-site Landscape Management Plan:</i></p> <p>An on-site landscaping plan has been developed for the site. The plan has been developed to restore former construction areas as well as to work in with the Off-site Tree Planting Screening that has been undertaken to provide a visual barrier to near neighbours of the power station site.</p> <p>The landscape plan indicates a tree lot planting on the eastern side of the power station site. This tree planting occurs on a neighbours property - The Jacks. To date this area of tree planting has not been secured and the planting on trees on this land is based on an acceptable arrangement been reached with the Jacks. As such tree planting on this area has been proposed but is not certain if this will ultimately occur. The Plant Superintendent and Origin Corporate Environmental Manager will continue discussions with the Jacks to with the aim of securing if this land for future tree screen plantings.</p> <p>The landscaping plan implementation program :</p> <table border="1"> <tbody> <tr> <td>Commencement Date:</td> <td>Commenced October 2008</td> </tr> <tr> <td>Completion of Internal Landscaping / Visual Amenity Works:</td> <td>If irrigation water is available - February 2009 If irrigation water is not immediately available - Spring 2009</td> </tr> <tr> <td>Completion of External Visual Amenity Works - Tree planting on eastern neighboring property (Jacks):</td> <td>Spring 2010 based on successful acquisition of required land off neighboring property -based on commercial valuation of land from independent third party valuer.</td> </tr> </tbody> </table>	Commencement Date:	Commenced October 2008	Completion of Internal Landscaping / Visual Amenity Works:	If irrigation water is available - February 2009 If irrigation water is not immediately available - Spring 2009	Completion of External Visual Amenity Works - Tree planting on eastern neighboring property (Jacks):	Spring 2010 based on successful acquisition of required land off neighboring property -based on commercial valuation of land from independent third party valuer.
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Completion of External Visual Amenity Works - Tree planting on eastern neighboring property (Jacks):	Spring 2010 based on successful acquisition of required land off neighboring property -based on commercial valuation of land from independent third party valuer.						

The On-Site Landscape Plan is visually presented in Appendix 3 with the main aspects of the plan including:

- Retention of all existing vegetation on-site;
- Use of endemic native vegetation to screen the development at both the middle and broad scale to aid in camouflaging the structures at distances;
- Implementation of native endemic tree/ shrub plantings to the east, west and south of the site;
- A list of native vegetation planting is provided in Appendix 5. DECC & WWCC have been consulted in regard to the types of vegetation to be used in the landscape plan.
- Additional planting of native endemic vegetation along the road way into the site.
- Vegetation planted under the landscape plan will be irrigated from water collected in the sites storm water pond. Details of the irrigation system are detailed in Section 15.2 Sediment Control and Water Quality Management Plan of this EMP.
- Site car parking will occur on-site within the sites internal security fence and away from landscaping areas.
- All shrubs and tree plantings will be protected from vehicle encroachment and stock grazing by appropriate fencing.

Off-Site Screening of Residual Amenity Impacts:

Off-site screen planting as per the Development Consent has been completed for the first round of properties who nominated for screening works. These screening works were completed in October 2007. OEUP will be responsible for the full maintenance including watering, pruning and replacement of dead vegetation of these screening areas until October 2012.

Under the conditions of the Development Consent, until January 2012, selected existing properties (residential property within 3 km of the site) around the power station site can nominate to have screen plantings undertaken on their properties. The following procedure will be followed for any further screening requests:

- Once OPEU receives a written request for screening works, an OPEU representative will met with the property owner to negotiate the scale, nature and timing of the visual mitigation works;
- OPEU will implement the agreed screening works within 6 months;
- OPEU will maintain the screening works for a period of 5 years from the date of installation of the barrier.

	<p><i>On-site Lighting:</i></p> <p><i>Design -</i></p> <ul style="list-style-type: none"> • A site lighting plan has been developed that provides adequate on-site lighting to meet OH&S requirements but minimise off-site lighting impacts. • The lighting plan has limited lighting under lumi-trol and most lighting is manually operated. The plan also allows selected areas of plant to be lit up as required leaving the rest of the site unlit. • Spot lights are only utilised in limited use areas and the majority of external lighting is down lights. <p><i>Operations -</i></p> <ul style="list-style-type: none"> • The plant will operate under specific <i>Operational Procedures</i> developed on-site specifically to manage lighting on the site. These procedures include using minimal lighting as required to undertake work on-site, ensuring lighting is turned off immediately after use and ensuring lighting is turned off if no personnel are on site. • Minimising lighting impacts will be part of the Site Induction for personnel and contractors.
<p>Maintenance</p>	<ul style="list-style-type: none"> • Onsite landscaping and offsite vegetation screening will be monitored and maintained as per Section 12.0 Environmental Monitoring of this EMP. • On-site landscaping and off-site vegetation visual barriers will have programmed maintenance to include irrigation scheduling, mowing, weed spraying pruning and tree replacement as required. Vegetation maintenance will be outsourced to an external landscape contractor. • Irrigation management of the on-site landscaping will be as per Section 15.2 Sediment Control and Water Quality Management Plan of this EMP.
<p>Performance Indicators</p>	<ul style="list-style-type: none"> • No complaints regarding visual impacts during operations • No complaints regarding lighting impacts off-site.
<p>Corrective Action / Reporting</p>	<ul style="list-style-type: none"> • Corrective action is required to be undertaken immediately after a complaint is made or nonconformance identified. • Complaints receipt and corrective action will be undertaken as per Section 8.0 Complaints Handling of this EMP. • The site Plant Superintendent will report on compliance with this EMP as required by the administering authorities.

15.5 Storage and Handling of Oils/Chemicals Management Plan

Element	Management Plan
Potential Impacts	<ul style="list-style-type: none"> • Release of contaminated water from contact with spilled chemicals. • Fuel source for onsite fires. • Generation of contaminated wastes.
Sources	<ul style="list-style-type: none"> • Generating units • Transformers • Hazardous Goods Store • Emergency Generators (Diesel) • Fire Fighting Pump (Diesel)
Objective	<ul style="list-style-type: none"> • To ensure that the storage and handling of chemicals, oils and diesel on site does not cause pollution of the environment or harm to persons. • To ensure that the storage and maintenance of machinery on site does not cause pollution of the environment or harm to persons.
Actions/Controls	<ul style="list-style-type: none"> • The storage of flammable and combustible liquids such as fuels and oils shall comply with <i>AS1940</i>. • The storage and handling of chemical substances will be in accordance with <i>AS 3780</i>. • Site personnel will be trained in appropriate spill response strategies and spill kit use. • Any spills shall be rendered harmless and arrangements made for appropriate collection and disposal, including cleaning materials, absorbents and contaminated soils in accordance with Section 15.7 Waste Management Plan of this EMP. • Ensure spill kits are available on site to clean up spills and leaks. • Oil water separator will be operated as per manufacturer's guidelines. • Transport of all hazardous substances will be in accordance with the <i>Australian Code for the Transport of Dangerous Goods by Road and Rail</i>.
Maintenance	<ul style="list-style-type: none"> • Spill and emergency response equipment will be accessible at appropriate locations across the site. • Bunds and storage facilities will be maintained to ensure design capacity is available. • Oil water separator will be maintained as per manufacturer's guidelines. Maintenance protocols will be established in the sites <i>Maintenance Program</i>.
Performance Indicators	<ul style="list-style-type: none"> • No chemical/oil spills outside of designated storage areas.

<p>Monitoring</p>	<ul style="list-style-type: none"> • Observation and supervision of chemical storage and handling practices by the site Plant Superintendent throughout the power station's operations phase. • Inspection of demineralisation plant chemicals storage for corrosion - sites <i>Maintenance Program</i>. • Inspection of diesel fuel tanks and lines for evidence of damage/leaking sites - <i>Maintenance Program</i>. • Inspection of bunding integrity, stability and function - Section 12 Environmental Monitoring of this EMP. • A complaints register will be held, in which any complaints from the community will be logged - Section 8 Complaints Handling of this EMP.
<p>Corrective Action / Reporting</p>	<ul style="list-style-type: none"> • Corrective Action is required to be undertaken immediately after a complaint is made or nonconformance identified. • Containment and cleanup of any spills on-site will follow the sites <i>Chemical & Oil Spill Procedure</i>. • Any spills shall be rendered harmless and arrangements made for appropriate collection and disposal, including cleaning materials, absorbents and contaminated soils in accordance with Section 15.7 Waste Management Plan of this EMP. • The Plant Superintendent will report on compliance with this EMP as required by the administering authorities.

15.6 Heritage Management Plan

Element	Management Plan
Potential Impacts	Heritage objects or artifacts found on site and inappropriately dealt with. It should be noted that in heritage & artifact assessments undertaken during the development of the site EIS found that there is a low potential for heritage objects or artifacts to occur on-site.
Objective	To ensure that any indigenous or non-indigenous heritage objects found on site are treated appropriately and in accordance with the relevant legislation.
Actions/Controls	<p>OPEU will ensure all staff are familiar with the procedures for dealing with indigenous or non-indigenous heritage objects</p> <p>A policy will be implemented, and all staff advised, that if a heritage object is found, staff must immediately stop work on the area and advise the site Plant Superintendent.</p>
Maintenance	Staff awareness of procedures for dealing with heritage objects will be updated when necessary.
Performance Indicators	All heritage items located are dealt with as per the legislative guidelines.
Monitoring	<p>Due care will be taken during earthworks and disturbance of land by all staff and to report any heritage objects found.</p> <p>Any future disturbance of locations where heritage items have been previously found will be the subject of re-inspection by interested parties prior to permission being granted by the site Plant Superintendent for disturbance.</p>
Corrective Action / Reporting	If a heritage object is found, work in that area will be stopped immediately, and appropriate specialists brought in to assess and notify the administering authority of the item.

15.7 Waste Management Plan

Element	Management Plan
Potential Impacts	<ul style="list-style-type: none"> • Inefficient use of resources resulting in excessive waste generation • Litter or contamination of the site or water through poor waste disposal methods
Sources	<ul style="list-style-type: none"> • Office and workshop facilities • Gaseous wastes • Waste water • Solid waste • Regulated Wastes • Sewerage
Actions/Controls Gaseous Wastes	<ul style="list-style-type: none"> • Installation of the low NO_x burner technology. • High exit velocity for maximum dispersion and dilution of exhaust gases. • Section 15.1 Air Quality Management Plan in this EMP.
Waste water	<ul style="list-style-type: none"> • Separation or contaminated waste water and clean stormwater for effective reuse. Waste water sources are illustrated in Figure 3. Site Waste Water Sources. • Policy of on-site management of waste water and storm water generated on-site. • Section 15.2 Sediment Control and Water Quality Management Plan in this EMP.
Solid Waste	<p><i>Demin Evaporative Residue from Evaporation Ponds</i></p> <ul style="list-style-type: none"> • Different off-site markets and outlets will be investigated for re-use of the evaporated salt removed from the waste demin water ponds. If no suitable markets or outlets can be found for reuse, the material will be disposed of to licensed disposal facilities as required. • Records of all demin evaporative residue disposals will be kept by the site as per Section 4.4 Records Management of this EMP. <p><i>Recycling:</i></p> <ul style="list-style-type: none"> • The Environmental Coordinator will investigate and implement a recycling program across the site with the objective of recycling as much of the waste stream generated on-site. • Areas of recycling that will be investigated will include office wastes such as paper and cardboard, waste oils, plastic chemical containers and metals. • Once the recycling program is implemented, appropriate receptacles will be provided for site segregation of wastes, appropriate training

	<p>will be provided for site and contract personnel and the management of the system will be undertaken by the Environmental Coordinator as per Section 12.1 Environmental Monitoring of this EMP.</p> <ul style="list-style-type: none"> Investigate on-site reuse of demin waste water for on-site. Records of all recycling will be kept by the site as per Section 4.4 Records Management of this EMP. <p><i>General Wastes:</i></p> <ul style="list-style-type: none"> General wastes unable to be recycled, will be stored in appropriate receptacles and picked up as required by a licensed contractor and disposed of at the licensed WWCC Landfill. The management of the system will be undertaken by the Environmental Coordinator as per Section 12.1 Environmental Monitoring of this EMP. No on-site burning of wastes will be allowed at any time. Records of all general waste disposal will be kept by the site as per Section 4.4 Records Management of this EMP. <p><i>Green Wastes:</i></p> <ul style="list-style-type: none"> Green wastes from landscape maintenance activities will be reused on site where possible or disposed of uncontaminated to the green waste section of the WWCC landfill facility. No on-site burning of green wastes will be allowed at any time.
<p>Regulated Wastes:</p> <ul style="list-style-type: none"> Waste Chemicals Waste Oils Contaminated Soils Spill Clean-Up Material and Absorbents 	<ul style="list-style-type: none"> Regulated Waste will only be transported from the site by companies licensed to do so. Appropriate disposal will be arranged with a licensed facility in consultation with the administering authority. Regulated Waste removal records will be kept for a minimum of 6 years. Records of all regulated waste disposal will be kept as per Section 4.4 Records Management of this EMP.
<p>Sewage</p>	<ul style="list-style-type: none"> Treated through on-site septic treatment facility. Septic system will be inspected by WWCC Officer annually to ensure efficient and safe operation. Transpiration area is to remain fenced off from vehicle and stock access. The management of the system will be undertaken by the Environmental Coordinator as per Section 12.1 Environmental Monitoring of this EMP.
<p>Maintenance</p>	<ul style="list-style-type: none"> General wastes will be removed at least weekly for disposal. Contaminated or regulated wastes will be disposed of as required and in accordance with legislation An incident/complaint register will be established and maintained

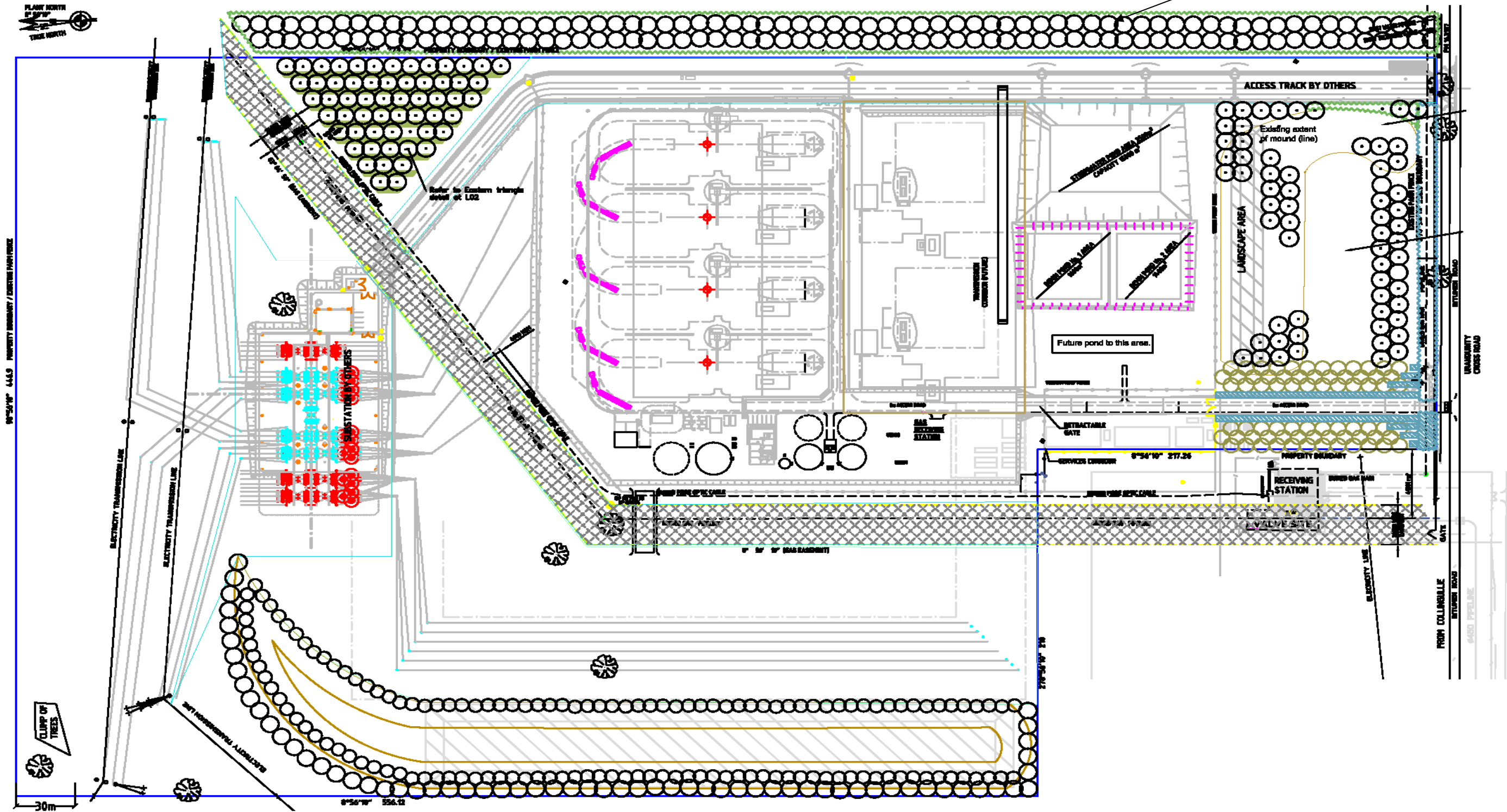
<p>Performance Indicators</p>	<ul style="list-style-type: none"> • No unnecessary wastes generated. • Recycling performance indicators to be generated to reflect percentage of wastes generated being recycled. • No adverse impacts on land and water resources
<p>Monitoring</p>	<ul style="list-style-type: none"> • Visual inspection of the site will be carried out daily for evidence of litter or waste material that has been inappropriately disposed of by site personnel. Formal monitoring will be undertaken weekly. • Waste collection will be monitored on a regular basis • Waste documentation will be completed and available for inspection on request • A complaints register will be held, in which any complaints from the community will be logged. • Complaints will be investigated and, if appropriate, acted upon
<p>Corrective Action / Reporting</p>	<ul style="list-style-type: none"> • Corrective action is required to be undertaken immediately after a complaint is made or nonconformance identified. • Complaints receipt and corrective action will be undertaken as per Section 8.0 Complaints Handling of this EMP. • The site Plant Superintendent will report on compliance with this EMP as required by the administering authorities.

15.8 Transport Code of Conduct

Element	Management Plan
Potential Impacts	<ul style="list-style-type: none"> Disturbance of neighboring residences and the Community of Uranquinty by transport vehicles to site.
Sources	<ul style="list-style-type: none"> OEUP personnel transport to and from power station Transport deliveries to site
Actions/Controls	<ul style="list-style-type: none"> Heavy vehicles shall only be permitted to enter and leave the site between 7.00am and 7.00pm on any day. This condition does not apply in the event of a direction from police or other relevant authority for safety reasons. Access route to the site for delivery vehicles will be limited to Uranquinty Cross Road via the Sturt Highway at Uranquinty. The site induction for site personnel and regular delivery drivers will cover: <ul style="list-style-type: none"> The need to observe speed zones, especially the 50km speed zones through Uranquinty and the 100k speed zone along Uranquinty Cross Road. The need to ensure appropriate behavior on community roads. The need to ensure that noise levels are kept to a minimum especially through the township of Uranquinty and into the power station site. Loads entering or leaving site will be suitably covered to ensure loads are secure.
Performance Indicators	<ul style="list-style-type: none"> No community complaints in respect to OPEU personnel driving or transport deliveries
Monitoring	<ul style="list-style-type: none"> Informal observations by site Plant Superintendent and Environmental Coordinator; A complaints register will be held, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon
Corrective Action / Reporting	<ul style="list-style-type: none"> Corrective action is required to be undertaken immediately after a complaint is made or nonconformance identified. Complaints receipt and corrective action will be undertaken as per Section 8.0 Complaints Handling of this EMP. The site Plant Superintendent will report on compliance with this EMP as required by the administering authorities.

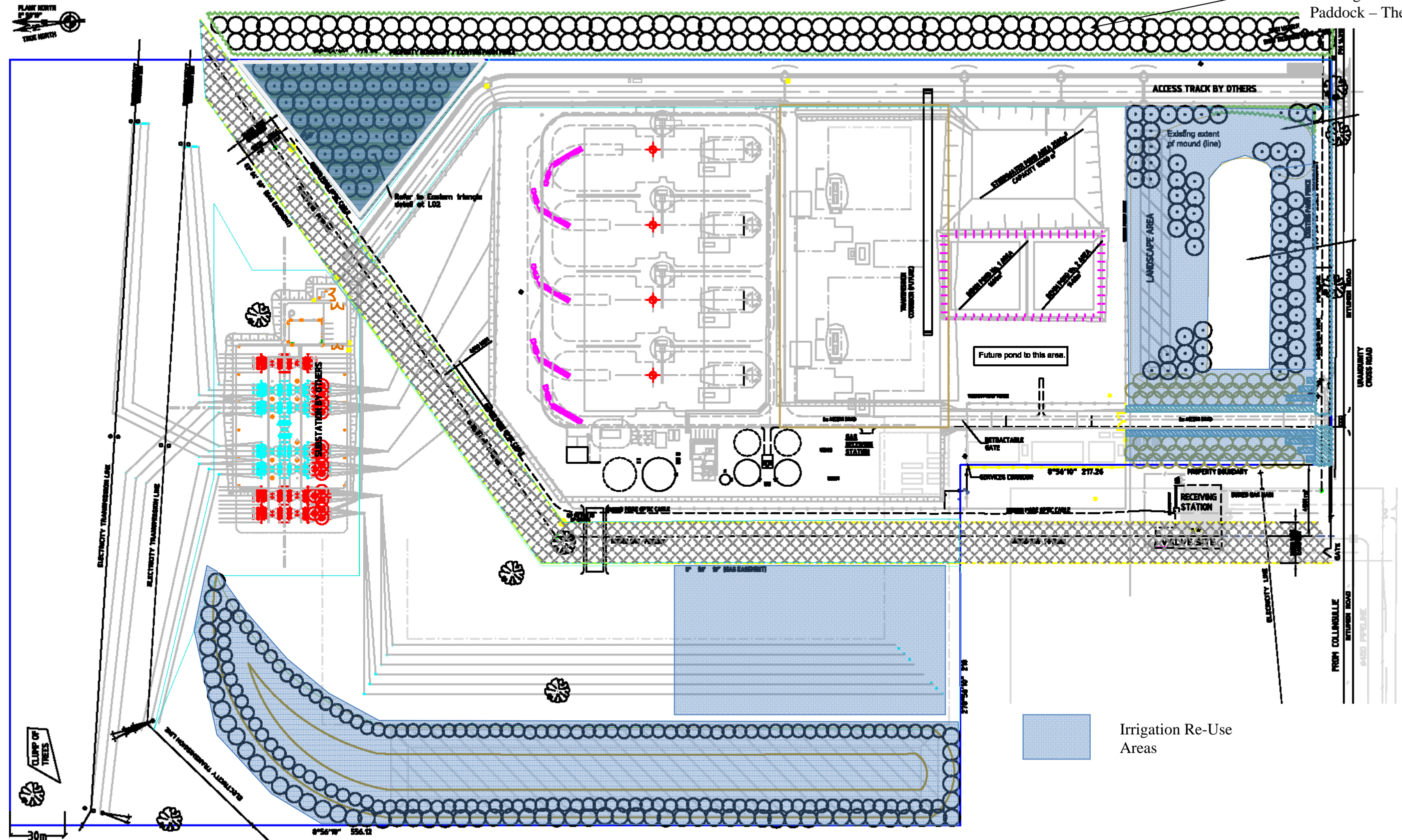
APPENDIX 1. SITE LAYOUT SCHEMATIC

Potential Future Off-Site
Visual Amenity Planting
on Neighbouring
Paddock – The Jacks

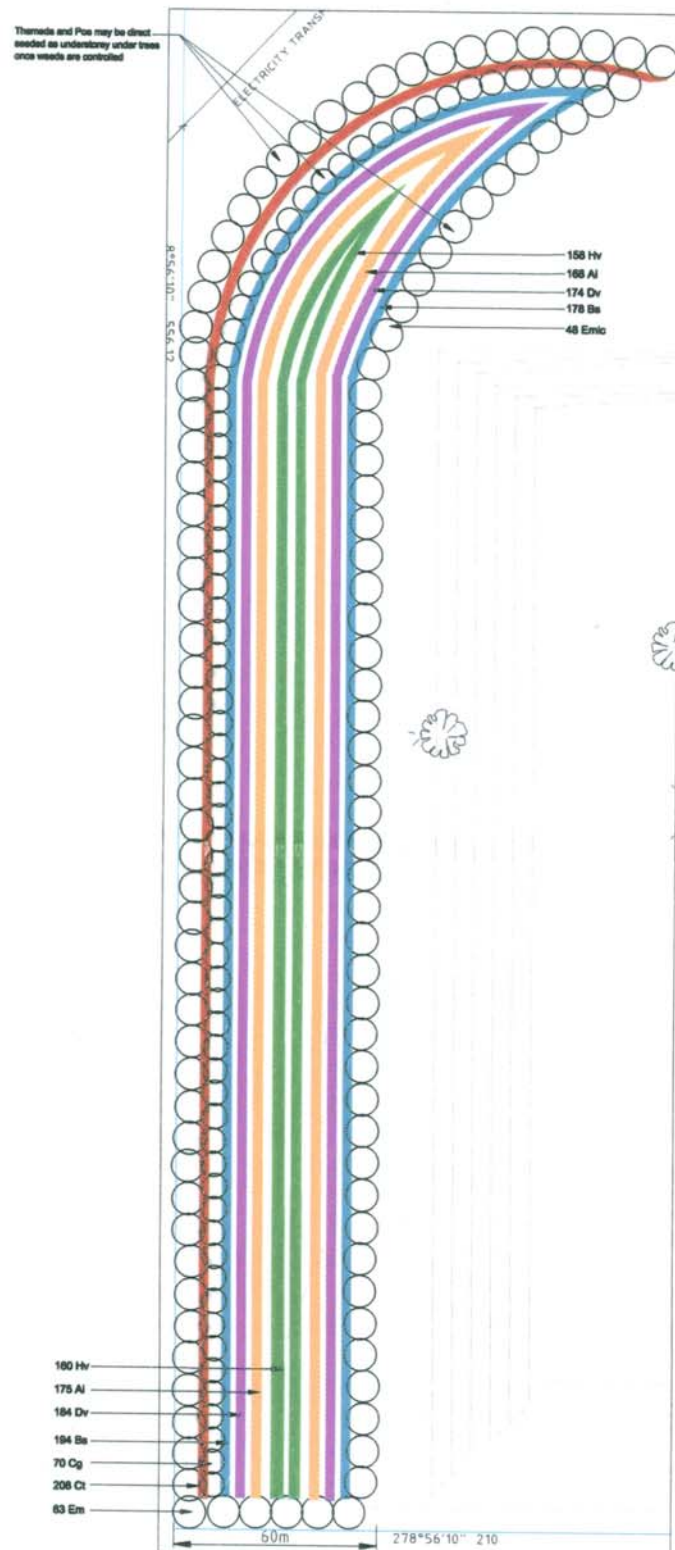


APPENDIX 2a. IRRIGATION REUSE AREAS

Potential Future Off-Site
Visual Amenity Planting
on Neighbouring
Paddock – The Jacks



Irrigation Re-Use Areas



The Western Mound
Scale 1:750 at A0

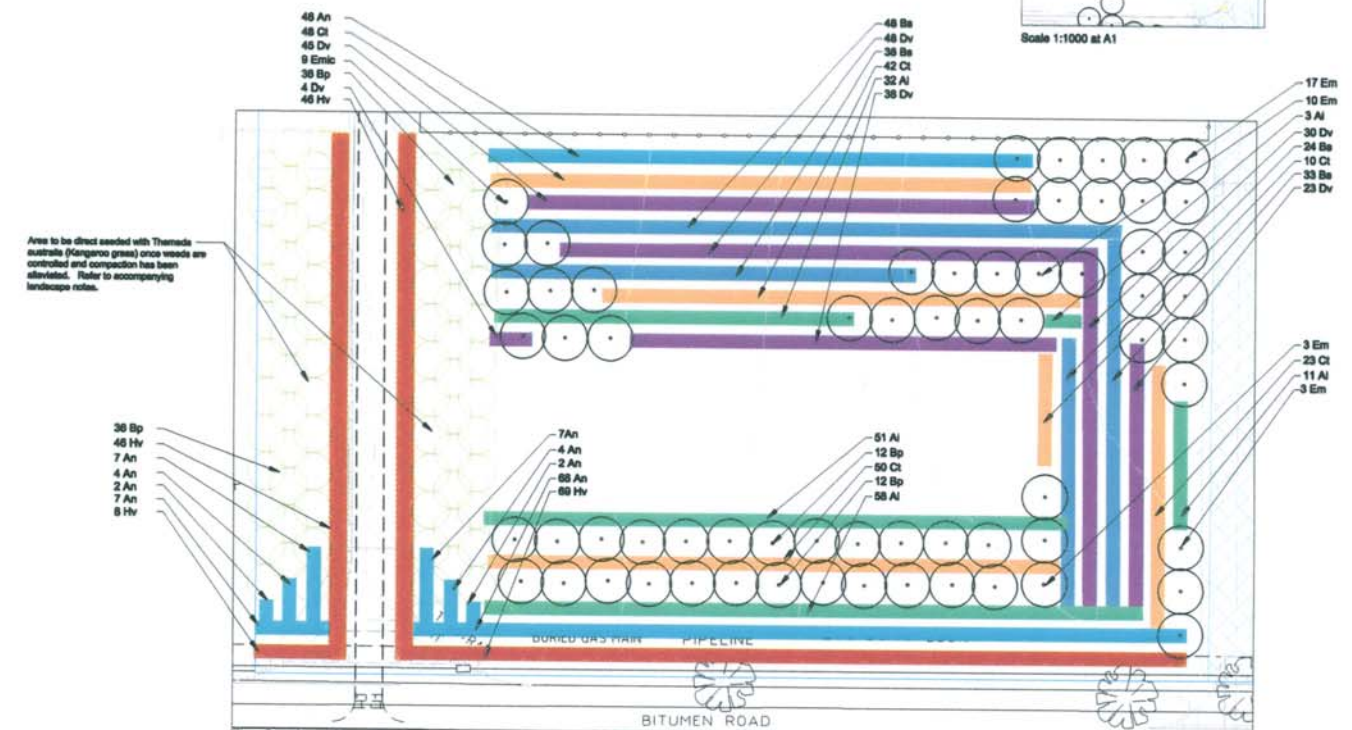
WESTERN MOUND

Code	Species	Pot size	Spacing	Nos
Ai	Acacia iteaphylla	S	2.5m	343
Ba	Bursaria spinosa	S	2.5m	372
Cg	Callitris glaucophylla	S	10m	70
Ct	Calytrix tetragona	S	2.5m	208
Dv	Dodonea viscosa subsp. cuneata	S	2.5m	358
Eb	Eucalyptus blakeleyi	S	10m	40
Em	Eucalyptus melliodora	S	10m	63
Emic	Eucalyptus microcarpa	S	10m	48
Hv	Hardenbergia violacea	S	2.5m	318

SOUTHERN MOUND AND ENTRANCE

Code	Species	Pot size	Spacing	Nos
An	Atriplex nummularia	Speedling	2.5m	149
Ai	Acacia iteaphylla	S	2.5m	155
Bp	Brachychiton populneus	S	10m	96
Ba	Bursaria spinosa	S	2.5m	143
Ct	Calytrix tetragona	S	2.5m	173
Dv	Dodonea viscosa subsp. cuneata	S	2.5m	188
Em	Eucalyptus melliodora	S	10m	33
Emic	Eucalyptus microcarpa	S	10m	9
Hv	Hardenbergia violacea	S	2.5m	169

NB. Native grasses *Lomandra longifolia*, *Poa labillardieri* and *Themeda australis* may be direct seeded as an understorey to all tree plantings if weeds can be controlled and compaction alleviated.



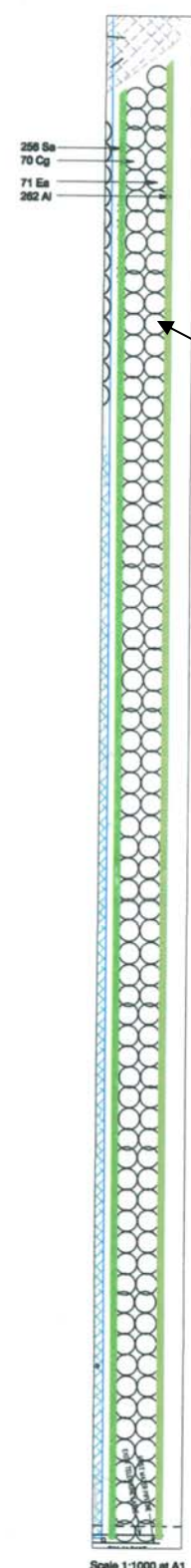
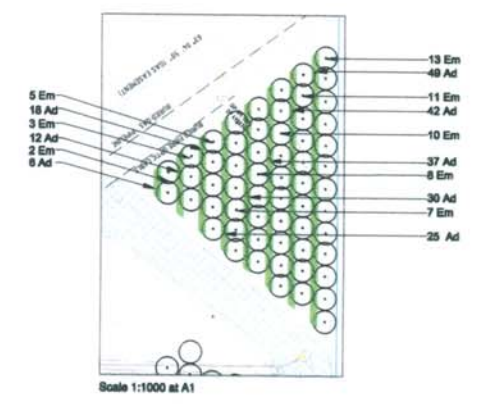
The Southern Mound
Scale 1:500 at A1

THE EASTERN BOUNDARY PLANTATION

Code	Species	Pot size	Spacing	Nos
Ai	Acacia leucoclada	Speedling	2.5m	262
Cg	Callitris glaucophylla	S	10m	70
Ea	Eucalyptus sibirica	S	10m	71
Sa	Senna artemisioides	S	2.5m	256

THE EASTERN TRIANGLE

Code	Species	Pot size	Spacing	Nos
Ad	Acacia deansii	Speedling	2.5m	219
Em	Eucalyptus melliodora	S	10m	59



Scale 1:1000 at A1



NOTE:
Irrigation lines to all planted areas at 5m spacings, with in-line drippers at 2.5m spacings. All trees at 10m centres. All shrubs/groundcovers at 2.5m centres. Refer to accompanying specification document and typical details for further information.

REVISION	AMENDMENT	ISSUED
1	Planting layout	18-06-08

LANDSCAPE ARCHITECT

Somewhere.

LANDSCAPE ARCHITECTS, DESIGNERS AND DREAMERS

Older Miong YOUNG NSW 2594
P 0263847333 F 0263847358
oia@somewhere.nsw.gov.au

CONTRACT NO.

DRAWN: A.DALGLISH

CHECKED: D.CONDON

DATE: 18-06-08

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NEWGEN POWER URANQUINTY PTY LTD

URANQUINTY GAS-FIRED POWER STATION

LANDSCAPE PLANTING PLAN

CONCEPT

Scale: See plan

DRG No: A0

REV: B

LO2

Landscaping Tree Planting Species

The codes reference back to Site Landscape Plan Drawings No.1 & 2 above.

THE EASTERN BOUNDARY PLANTATION

Code Species

Cg Callitris glaucophylla
Ea Eucalyptus albens
Sa Senna artemisioides

THE EASTERN TRIANGLE

Code Species

Ad Acacia deanei
Em Eucalyptus melliodora

WESTERN MOUND_

Code Species

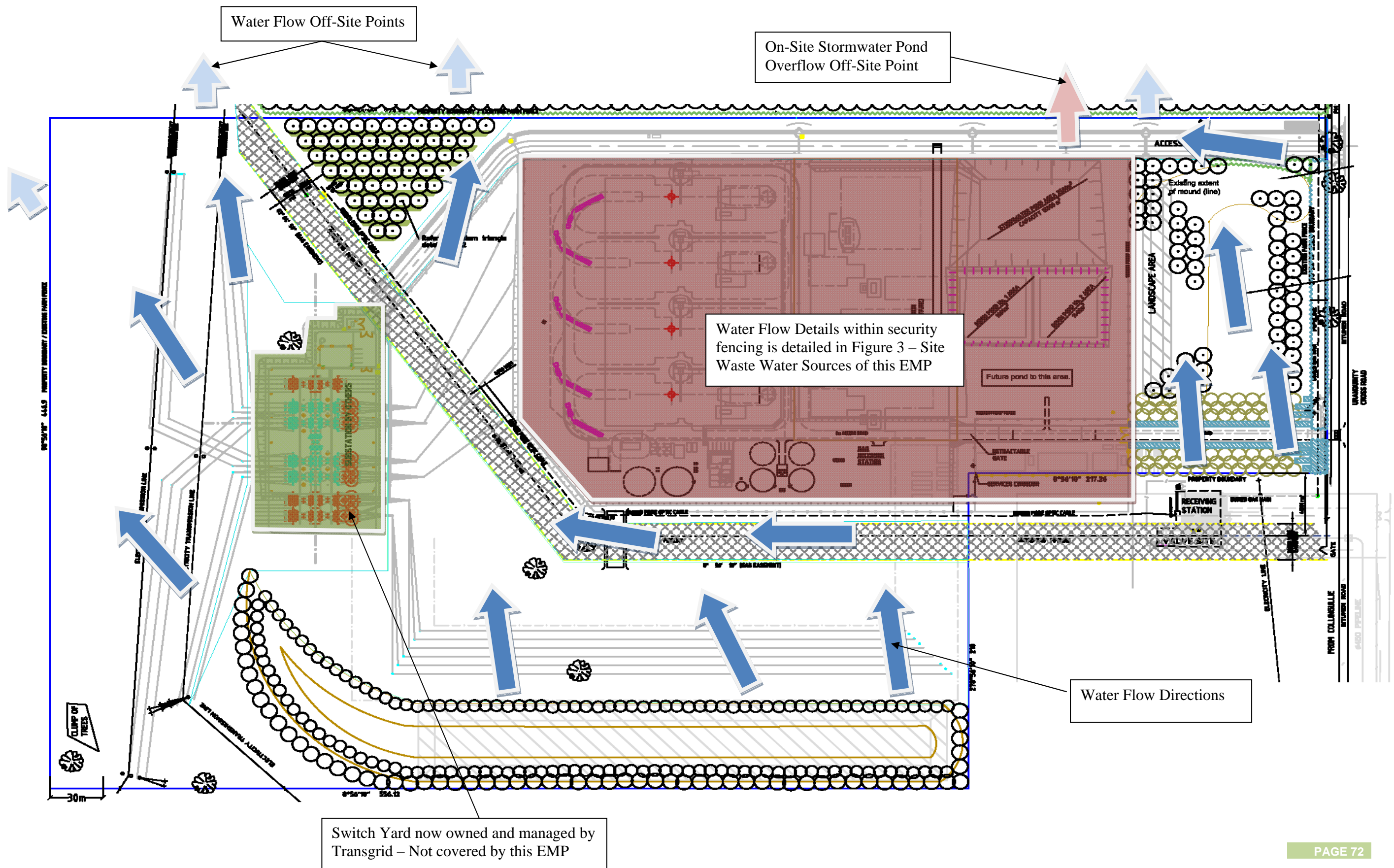
Bs Bursaria spinosa
Cg Callitris glaucophylla
Ct Calytrix tetragona
Dv Dodonea viscosa subsp cuneata
Eb Eucalyptus blakelyi
Em Eucalyptus melliodora
Emic Eucalyptus microcarpa
Hv Hardenbergia violacea

SOUTHERN MOUND AND ENTRANCE

Code Species

Bp Brachychiton populneus
Bs Bursaria spinosa
Ct Calytrix tetragona
Dv Dodonea viscosa subsp cuneata
Em Eucalyptus melliodora
Emic Eucalyptus microcarpa
Hv Hardenbergia violacea

APPENDIX 4. SITE WATER DRAINAGE AND DISCHARGE OFF-SITE POINTS



Appendix 5. PROJECT SPECIFIC ENVIRONMENTAL CONDITIONS

Document 1:		DoP - Development Consent -DA-31-2-2004-i	
Aspect	Summary of Project Specific Environmental Conditions	Planned Control Measures	Responsibilities
3. ENVIRONMENTAL PERFORMANCE			
Air Quality Impacts	3.1 The Applicant shall design, construct, operate and maintain the development in a manner that minimises dust emissions from the site.	<ul style="list-style-type: none"> Maintaining sealed roadways & gravel areas around site Weekly site inspections Successful implementation & maintenance of the <i>Landscape Management Plan</i> 	Plant Superintendent Environmental Coordinator Environmental Coordinator
	3.2 The Applicant shall not permit any offensive odour, as defined under section 129 of the <i>Protection of the Environment Operations Act 1997</i> , to be emitted beyond the boundary of the site.	<ul style="list-style-type: none"> Successful implementation & maintenance of the site <i>Waste Management Plan</i> 	Environmental Coordinator
Limitations on Fuel	3.3 The Applicant shall only use natural gas for routine firing in the power station turbines.	<ul style="list-style-type: none"> Design of plant - only available fuel As per site Operations Manual. 	Plant Superintendent Plant Operators/ Maintainers
	3.4 The Applicant shall only use low sulfur diesel (containing no greater than 0.05 wt% (500 ppm) sulfur) in the power station turbines during emergencies.	<ul style="list-style-type: none"> Not applicable - No diesel power generation. 	-

<i>Discharge Limits</i>	<p>3.5 The Applicant shall design, construct, operate and maintain the development to ensure that for each turbine stack discharge point (four in total), the concentration of NOx is not exceeded when utilising the specified fuel.</p>	<ul style="list-style-type: none"> • Design of plant • Continuous monitoring equipment • Operating procedures - Siemens Operating Manual: Overall Plant • Ensuring efficient fire up & shut downs. • Operating protocol of not running units at less than 50% capacity. • Implementation of Maintenance protocols as per Siemens Maintenance Manual. • <i>Section 12.0: Environmental Monitoring</i> 	<p style="text-align: center;">Plant Superintendent</p> <p style="text-align: center;">Plant Operators/ Maintainers</p>
<i>Meteorological Monitoring Station</i>	<p>3.6 The Applicant shall install, operate and maintain a meteorological monitoring station to monitor weather conditions representative of those on the site.</p> <p>The Applicant shall use the meteorological monitoring station to undertake the monitoring required under condition 4.1 of this consent.</p>	<ul style="list-style-type: none"> • Maintenance & Calibration as per BOP Maintenance Manual • Monthly down-load of data. • Weekly Inspections • <i>Section 12.0: Environmental Monitoring</i> 	<p style="text-align: center;">Plant Superintendent Environmental Coordinator</p>
<i>Noise Impacts</i>	<p><i>Vibration Impacts</i></p> <p>3.7 The Applicant shall ensure that the vibration resulting from operation of the development does not exceed the evaluation criteria presented in British Standard BS6472 for low probability of adverse comment, at any affected residential dwelling.</p> <p><i>Heavy Vehicles</i></p> <p>3.8 Heavy vehicles shall only be permitted to enter or leave the site between 7:00 am and 7:00 pm on any day. This condition does not apply in the event of a direction from police or other relevant authority for safety reasons.</p>	<ul style="list-style-type: none"> • Design of plant • Implementation of Maintenance protocols as per Siemens Maintenance Manual. • Successful implementation of <i>Traffic Management Plan</i> 	<p style="text-align: center;">Plant Operators/ Maintainers</p> <p style="text-align: center;">Plant Superintendent</p>
<i>Operation Noise</i>	<p><i>Operation Noise</i></p> <p>3.11 The Applicant shall operate and maintain the development to ensure that the noise contributions from the development to the background acoustic environment do not exceed the maximum allowable noise contributions.</p>	<ul style="list-style-type: none"> • Design of plant • Successful implementation of <i>Noise Management Plan</i> • <i>Section 12.0: Environmental Monitoring</i> 	<p style="text-align: center;">Plant Superintendent</p>

Soil and Water Quality Impacts	3.13 Except as may be expressly permitted by an Environment Protection Licence for the development, the Applicant shall ensure that section 120 of that Act (prohibition of pollution of waters) is complied with in and in connection with the carrying out of the development.	<ul style="list-style-type: none"> • Design of plant • Successful implementation of <i>Noise Management Plan</i> • Successful implementation of <i>Hazardous Chemical Storage Plan</i> • Maintenance of oil/water separator as per BOP Maintenance Manual • Successful implementation of <i>Stormwater Management Plan</i> • Weekly Inspections • <i>Section 12.0: Environmental Monitoring</i> 	Plant Superintendent Plant Superintendent Plant Operators Plant Superintendent Environmental Coordinator
	3.14 All water detention basins installed on the site for the management of surface water or stormwater shall be lined with an impermeable clay liner (or equivalent) of at least 300 millimetres thickness and with a permeability of no greater than 1×10^{-9} mms ⁻¹ . Livestock shall not be permitted to use these basins.	<ul style="list-style-type: none"> • Weekly Inspections • Successful implementation of <i>Stormwater Management Plan</i> 	Environmental Coordinator Plant Superintendent
Hazards and Risk Impacts <i>Bunding and Spill Management</i>	3.15 The Applicant shall store and handle all liquid hazardous materials and liquid dangerous goods, as defined by the Australian Dangerous Goods Code, strictly in accordance with: a) all relevant Australian Standards; b) a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund.	<ul style="list-style-type: none"> • Design of plant • Successful implementation of <i>Hazardous Chemical Storage Plan</i> • Weekly Inspections 	Plant Superintendent Environmental Coordinator
Waste Generation and Management	3.18 The Applicant shall not cause, permit or allow any waste generated by the development or from outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence issued by the DECC. This condition only applies to wastes for which a licence under the <i>Protection of the Environment Operations Act</i> or the <i>Environmentally Hazardous Chemicals Act 1985</i> is required.	<ul style="list-style-type: none"> • Successful implementation & maintenance of the site <i>Waste Management Plan</i> • Weekly Inspections 	Plant Superintendent Environmental Coordinator



Flora, Fauna and Visual Amenity Impacts	3.19 Nothing in this consent permits the destruction, removal or damage of any tree in undertaking the development.	<ul style="list-style-type: none"> • Successful implementation & maintenance of the site <i>Landscape Management Plan</i> • Weekly Inspections 	Plant Superintendent Environmental Coordinator
	3.20 The Applicant shall take all practicable measures to prevent any off-site lighting impacts from the development. In particular the Applicant shall ensure that no lights are directed towards private residences or roads, and that lighting is consistent with Australian Standard <i>AS4282(INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting</i> .	<ul style="list-style-type: none"> • Successful implementation of the site <i>Lighting Management Plan</i> 	Plant Superintendent
<i>Off-Site Screening of Residual Visual Amenity Impacts</i>	3.21 Any landowner with a residential property within three kilometres of the site may, within five years of the commencement of construction of the development, request that the Applicant undertake visual impact mitigation works on the landowner's property.	<ul style="list-style-type: none"> • Successful implementation & maintenance of the site <i>Off-Site Residual Visual Amenity Impacts Management Plan</i> • Quarterly Inspection program 	Plant Superintendent Environmental Coordinator Environmental Coordinator
Heritage Impacts	3.28 In the event that any item with identified or suspected heritage value is discovered/located during the development, the Applicant shall cease all activities that may adversely impact on the item and contact the NSW Heritage Office (in relation to items of non-indigenous heritage significance) or the Department of Environment and Conservation (in relation to items of indigenous heritage significance).	<ul style="list-style-type: none"> • Successful implementation of the site <i>Heritage Management Plan</i> 	Plant Superintendent

4. ENVIRONMENTAL MONITORING AND AUDITING			
Meteorological Monitoring	4.1 From the commencement of any works on the site, the Applicant shall continuously monitor, utilising the meteorological monitoring station referred to under condition 3.6 of this consent.	<ul style="list-style-type: none"> • Continuous monitoring equipment • <i>Section 12.0: Environmental Monitoring</i> 	Environmental Coordinator
Air Quality Monitoring	4.2 The Applicant shall determine the pollutant concentrations and emission parameters at each of the turbine stack discharge points.	<ul style="list-style-type: none"> • Continuous monitoring equipment • <i>Section 12.0: Environmental Monitoring</i> 	Environmental Coordinator
Water Quality Monitoring	4.7 The Applicant shall undertake monitoring of discharge water quality from the stormwater retention pond and the evaporation pond.	<ul style="list-style-type: none"> • <i>Section 12.0: Environmental Monitoring</i> 	Environmental Coordinator
Auditing	4.9 Twelve months after the commencement of operation of the development, and every three years thereafter the Applicant shall commission an independent, qualified person or team to undertake an Environmental Audit of the development.	<ul style="list-style-type: none"> • <i>Section 12.0: Environmental Auditing</i> 	Plant Superintendent Environmental Coordinator
5. COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT			
Documents	5.1 Subject to confidentiality, the Applicant shall make all documents required under this consent available for public inspection on request. This shall include provision of all documents at the site for inspection by visitors, and in an appropriate electronic format on the Applicant's internet site, should one exist.	<ul style="list-style-type: none"> • Successful implementation of the site <i>Community Consultation Management Plan</i> • <i>Section 4.4: Environmental Records Management</i> 	Plant Superintendent Environmental Coordinator



<p>Complaints Procedure</p>	<p>5.2 The Applicant shall ensure that the following are available for community complaints:</p> <p>a) a 24-hour, toll-free telephone number on which complaints about the development may be registered;</p> <p>b) a postal address to which written complaints may be sent; and c) an email address to which electronic complaints may be transmitted.</p> <p>5.3 The Applicant shall record details of all complaints received through the means listed under condition 5.2 of this consent in an up-to-date Complaints Register.</p> <p>The Complaints Register shall be made available for inspection by the DECC and the Director-General upon request.</p> <p>The Applicant shall also make summaries of the Register, without details of the complainants, available to the public for inspection upon request.</p>	<ul style="list-style-type: none"> • Successful implementation of the site <i>Community Consultation Management Plan</i> • <i>Section 8.0: Environmental Complaints</i> • <i>Section 4.4: Environmental Records Management</i> • <i>Section 7.0: Environmental Training</i> 	<p>Plant Superintendent</p> <p>Environmental Coordinator</p>
<p>Community Participation Program</p>	<p>5.5 The Applicant shall prepare and implement Community Participation Program, on an on-going basis through the operation development, in consultation with the Community Participation Panel established under condition 5.4 of this consent. The Program shall include, but not necessarily be limited to:</p> <p>a) the general types of information about the environmental management and impacts of the development that the community would receive;</p> <p>b) the means by which the information referred to under a) would be provided to the community (for example, presented at regular meetings, published in regular newsletters etc);</p> <p>c) a mechanism through which the community can provide feedback to the Applicant in relation to the environmental management and impacts of the development;</p> <p>d) a system and procedures to address community complaints.</p>	<ul style="list-style-type: none"> • Successful implementation of the site <i>Community Consultation Management Plan</i> 	<p>Plant Superintendent</p>

Environmental Representative	6.1 Prior to the commencement of construction of Stage 1 of the development, the Applicant shall nominate a suitably qualified and experienced Environmental Representative(s), for the approval of the Director-General. The Applicant shall employ the Environmental Representative(s) on a full-time basis during the life of the development.	<ul style="list-style-type: none"> • <i>Section 10.0: Environmental Representative</i> 	Plant Superintendent
Operation Environmental Management Plan	6.5 The Applicant shall prepare and implement an Operation Environmental Management Plan to detail an environmental management framework, practices and procedures to be followed during operation of the development. The Plan shall include, Air Quality management plan; Water Management Plan; Noise Management plan; Transport Code of Conduct; Landscape Management Plan.	<ul style="list-style-type: none"> • Successful implementation of this <i>Environmental Management Plan</i> • <i>Section 15.0: Significant Environmental Issues & Management Plans</i> 	Plant Superintendent
7. ENVIRONMENTAL REPORTING			
Incident Reporting	7.1 The Applicant shall notify the DECC and the Director-General of any incident with actual or potential significant off-site impacts on people or the biophysical environment within 12 hours of becoming aware of the incident. The Applicant shall provide full written details of the incident to the DECC and the Director-General within seven days of the date on which the incident occurred.	<ul style="list-style-type: none"> • <i>Section 13.0: Environmental Reporting</i> 	Plant Superintendent
Annual Performance Reporting	7.3 The Applicant shall, throughout the life of the development, prepare and submit for the approval of the Director-General, an Annual Environmental Management Report (AEMR) . The AEMR shall review the performance of the development against the Operation Environmental Management Plan (refer to condition 6.5 of this consent), the conditions of this consent and other licences and approvals relating to the development.	<ul style="list-style-type: none"> • <i>Section 13.0: Environmental Reporting</i> 	Plant Superintendent



Document 2:		DECC Environmental Protection Licence - 12490	
Aspect	Summary of Project Specific Environmental Conditions	Planned Control Measures	Responsibilities
A1 What the licence authorises and regulates	A1.1 This licence authorises the carrying out of the scheduled development work - Total 600 MW power station.		
Fee Based Activity Scale	Electricity Generation - Generation of electrical power from gas (34[b]) - 0 - 250 Gwh generated		
2. DISCHARGES TO AIR AND WATER AND APPLICATIONS TO LAND			
P1 Location of monitoring/discharge points and areas	Type of Monitoring Point Turbine Stack 1 Turbine Stack 2 Turbine Stack 3 Turbine Stack 4 Meteorological Station Discharge from stormwater retention pond	<ul style="list-style-type: none"> • Design of plant • Continuous monitoring equipment • <i>Section 12.0: Environmental Monitoring</i> 	Plant Superintendant

3. LIMIT CONDITIONS			
L1 Pollution of waters	L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.	<ul style="list-style-type: none"> • Design of plant • Successful implementation of <i>Noise Management Plan</i> • Successful implementation of <i>Hazardous Chemical Storage Plan</i> • Maintenance of oil/water separator as per BOP Maintenance Manual • Successful implementation of <i>Stormwater Management Plan</i> • Weekly Inspections • <i>Section 12.0: Environmental Monitoring</i> 	Plant Superintendent Plant Superintendent Plant Operators Plant Superintendent Environmental Coordinator
L3 Concentration limits	Pollutant - Nitrogen Oxides Units of measure - mg/Nm ³ 100 percentile concentration limit - 51	<ul style="list-style-type: none"> • Design of plant • Continuous monitoring equipment • Operating procedures - Siemens Operating Manual: Overall Plant • Ensuring efficient fire up & shut downs. • Operating protocol of not running units at less than 50% capacity. • Implementation of Maintenance protocols as per Siemens Maintenance Manual. • <i>Section 12.0: Environmental Monitoring</i> 	Plant Superintendent Plant Operators/ Maintainers
L6 Noise Limits	L6.1 Noise from the premises must not exceed the sound pressure level (noise) limits	<ul style="list-style-type: none"> • Design of plant • Successful implementation of <i>Noise Management Plan</i> • <i>Section 12.0: Environmental Monitoring</i> 	Plant Superintendent
L7 Potentially offensive odour	L7.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.	<ul style="list-style-type: none"> • Successful implementation & maintenance of the site <i>Waste Management Plan</i> 	Environmental Coordinator

L8 Approved Fuels	<p>L8.1 Natural gas is the only fuel approved for routine firing of the power station turbines. Low sulphur diesel is approved for firing the power station turbines in emergencies when the natural gas supply has been disrupted. Operation of the turbines on diesel fuel must not exceed a total of 70 hours per year.</p>	<ul style="list-style-type: none"> • Design of plant - only available fuel • As per site Operations Manual. 	Plant Superintendent Plant Operators/ Maintainers
O1 Activities must be carried out in a competent manner	<p>O1.1 Licensed activities must be carried out in a competent manner. This includes: (a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and (b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.</p>	<ul style="list-style-type: none"> • Successful implementation & maintenance of the site <i>Waste Management Plan, Transport Management Plan & Hazardous Goods Storage Plan.</i> 	Plant Superintendent Environmental Coordinator
O2 Maintenance of plant and equipment	<p>O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity: (a) must be maintained in a proper and efficient condition; and (b) must be operated in a proper and efficient manner.</p>	<ul style="list-style-type: none"> • Operating procedures - Siemens Operating Manual: Overall Plant • Implementation of Maintenance protocols as per Siemens Maintenance Manual. 	Plant Superintendent
O3 Maintaining Waste Water Utilisation Areas	<p>O3.1 Waste water utilisation areas must effectively utilise the waste water applied to those areas. This includes the use for pasture or crop production, as well as ensuring the soil is able to absorb the nutrients, salts, hydraulic load and organic materials in the solids or liquids. Monitoring of land and receiving waters to determine the impact of waste water application may be required by the DECC.</p>	<ul style="list-style-type: none"> • Successful implementation of <i>Stormwater Management Plan & Landscape Management Plan</i> • Weekly Inspections 	Plant Superintendent Environmental Coordinator
	<p>O4 A Stormwater Management Scheme must be prepared for the development and must be implemented.</p>		
5 Monitoring and recording conditions			
M1 Monitoring records	<p>M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.</p>	<ul style="list-style-type: none"> • <i>Section 12.0: Environmental Monitoring</i> • <i>Section 4.4: Environmental Records Management</i> 	Plant Superintendent Environmental

	<p>M1.2 All records required to be kept by this licence must be: (a) in a legible form, or in a form that can readily be reduced to a legible form; (b) kept for at least 4 years after the monitoring or event to which they relate took place; and (c) produced in a legible form to any authorised officer of the DECC who asks to see them.</p> <p>M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence: (a) the date(s) on which the sample was taken; (b) the time(s) at which the sample was collected; (c) the point at which the sample was taken; and (d) the name of the person who collected the sample.</p>		Coordinator
<p>M2 Requirement to monitor concentration of pollutants discharged</p>	<p>For each monitoring/discharge point or utilisation area specified, the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified. The licensee must use the sampling method, units of measure, and sample at the frequency, specified.</p>	<ul style="list-style-type: none"> • <i>Section 12.0: Environmental Monitoring</i> 	<p>Plant Superintendent Environmental Coordinator</p>
<p>M4 Recording of pollution complaints</p>	<p>M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.</p> <p>M4.2 The record must include details of the following: (a) the date and time of the complaint; (b) the method by which the complaint was made; (c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect; (d) the nature of the complaint; (e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and (f) if no action was taken by the licensee, the reasons why no action was taken.</p> <p>M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.</p>	<ul style="list-style-type: none"> • Successful implementation of the site <i>Community Consultation Management Plan</i> • <i>Section 8.0: Environmental Complaints</i> • <i>Section 4.4: Environmental Records Management</i> • <i>Section 7: Environmental Training</i> 	<p>Plant Superintendent Environmental Coordinator</p>

	M4.4 The record must be produced to any authorised officer of the DECC who asks to see them		
M5 Telephone complaints line	M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.		
	M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.		
6. REPORTING CONDITIONS			
R1 Annual return documents What documents must an Annual Return contain?	R1.1 The licensee must complete and supply to the DECC an Annual Return in the approved form comprising: (a) a Statement of Compliance; and (b) a Monitoring and Complaints Summary. A copy of the form in which the Annual Return must be supplied to the DECC accompanies this licence. Before the end of each reporting period, the DECC will provide to the licensee a copy of the form that must be completed and returned to the DECC.	<ul style="list-style-type: none"> • <i>Section 13.0: Environmental Reporting</i> • <i>Section 4.4: Environmental Records Management</i> 	Plant Superintendent
Period covered by Annual Return	R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below. Do not complete the Annual Return until after the end of the reporting period.		
Deadline for Annual Return	R1.5 The Annual Return for the reporting period must be supplied to the DECC by registered post not later than 60 days after the end of each reporting period.		
Licensee must retain copy of Annual Return	R1.7 The licensee must retain a copy of the Annual Return supplied to the DECC for a period of at least 4 years after the Annual Return was due to be supplied to the DECC.		



<p>Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary</p>	<p>R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: (a) the licence holder; or (b) by a person approved in writing by the DECC to sign on behalf of the licence holder.</p>		
<p>R2 Notification of environmental harm</p>	<p>Note: The licensee or its employees must notify the DECC of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act. R2.1 Notifications must be made by telephoning the DECC's Pollution Line service on 131 555. R2.2 The licensee must provide written details of the notification to the DECC within 7 days of the date on which the incident occurred.</p>	<ul style="list-style-type: none"> • <i>Section 13.0: Environmental Reporting</i> 	<p>Plant Superintendent</p>
<p>GENERAL CONDITIONS</p>			
<p>G1 Copy of licence kept at the premises</p>	<p>G1.1 A copy of this licence must be kept at the premises to which the licence applies. G1.2 The licence must be produced to any authorised officer of the DECC who asks to see it. G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.</p>	<ul style="list-style-type: none"> • <i>Section 4.4: Environmental Records Management</i> 	<p>Plant Superintendent Environmental Coordinator</p>

APPENDIX 6. Site Water Management Strategy