Colongra Power Station

Operation Environmental Management Plan

Prepared by Snowy Hydro

December 2019

Revision History

Revision	Date	Summary of Revision	Reviewed	Checked	Approved
Original A	2 November 2009	OEMP developed by AECOM on behalf of Delta Electricity		N/A	N/A
B	21 August 2015	Update of OEMP after change in ownership of Colongra from Delta Electricity to Snowy Hydro	Ian Smith Environment Manager (Gas & Diesel)	John Foster (Lead Gas Turbine Officer)	John Barben Colongra Plant Manager
C	1 May 2019	Review and update of OEMP	Rachael Williams Senior Environment Advisor (Gas & Diesel)	Damian Cooper Colongra Plant Manager and David Bedding Production Technician - Engineering	Gary Blanch Gas and Diesels Area Manager
D	12 December 2019	Minor review and update of OEMP review process	Rachael Williams Senior Environment Advisor (Gas & Diesel)	Damian Cooper Colongra Plant Manager and	Gary Blanch Gas and Diesels Area Manager

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1.0 Introduction

This Operation Environmental Management Plan (OEMP) has been prepared for the Colongra Power Station (**Colongra**).

Colongra was approved under section 75B(1)(a) of the *Environmental Planning and Assessment Act 1979* as a Major Project. Condition 5.3 of the Project Approval requires an Operational Environmental Management Plan to be prepared and implemented during operation of the project.

The purpose of the OEMP is to provide a reference document that ensures implementation of the environmental commitments, reporting, safeguards and mitigation measures specified in the Concept Approval, Project Approval, the EA Statement of Commitments, and Environment Protection Licence 13036 (EPL 13036).

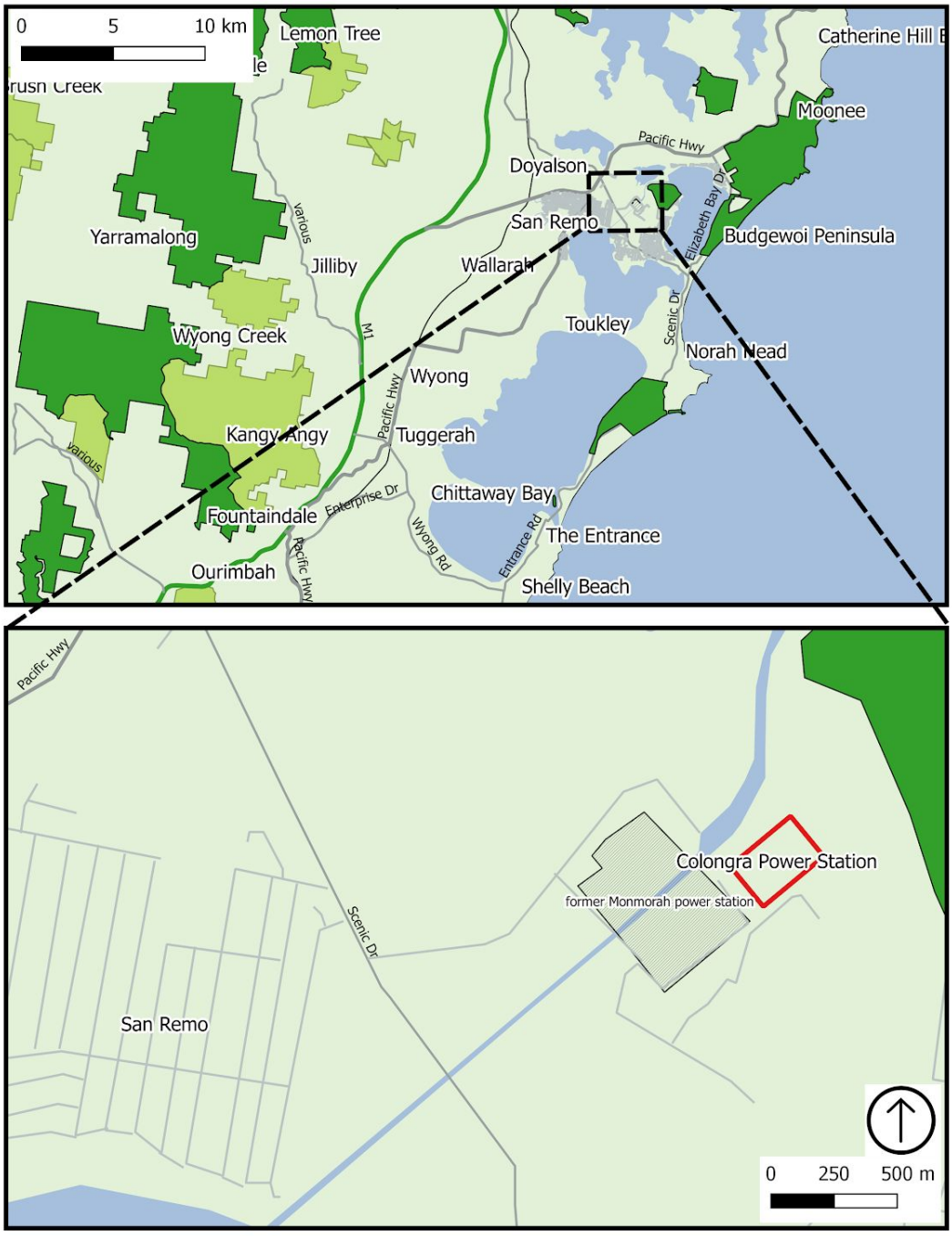
2.0 Overview

2.1 Location

Colongra is located on the Central Coast of NSW, adjacent to the now demolished Munmorah Power Station on the shores of Lake Munmorah, and within the Central Coast Council local government area. The location of Colongra is illustrated below in **Figure 1** and **Figure 2.**

Figure 1 Colongra Power Station Location Aerial View

Figure 2 Colongra Power Station Location Schematic View



2.2 Operations

Colongra is an open cycle gas fired power station operating as a peaking plant, supplying electricity at short notice during periods of peak demand or system emergency situations. Colongra provides electricity:

- at relatively short notice during periods of peak demand.
- using best available emissions control technology and low greenhouse gas emissions.
- that is market-competitive and consistent with current trends and future energy demands; and
- while achieving socially acceptable environmental outcomes.

Colongra comprises four GT 13E2 gas turbines with a nominal combined output of 667 megawatts. The gas turbines are capable of running on natural gas (as the primary fuel) and diesel fuel as the back-up fuel, with marginally higher power output whilst running on diesel fuel. The facility also includes ancillary plant items, such as diesel fuel and demineralised water storages, a facilities building and fire fighting systems.

Natural gas is supplied to Colongra via an underground "lateral" pipeline connecting the power station to the Sydney–Newcastle pipeline, which is located approximately seven kilometres west of the power station, and adjacent to the M1 Pacific Motorway. The lateral pipeline is owned and operated by Jemena Gas Networks Pty Ltd (Jemena) with gas use metered by Jemena at the offtake supplying the lateral.

Demineralised water is used for water injection during diesel-fuel firing and offline compressor washing. Potable water is used for evaporative cooling for the gas turbine.

The basic components and structures at the power station are:

- four gas turbine buildings and exhaust stacks.
- electrical generating equipment and power supply cables.
- facilities building.
- diesel fuel receival area, storage tank and delivery system.
- demineralised water storage and delivery system.
- lube oil supply systems (tanks, pumps and pipe work).
- fire detection, protection and fire fighting systems (detectors, fire main, fire water pumps and fire water storage tanks).
- oil / water separator system; and
- three emergency back-up diesel generators.

Appendices A and **B** show the key components and structures of Colongra with respect to environmental aspects.

2.3 Environment Policy

Snowy Hydro's Environment Policy is presented in **Figure 3** below.

snowy hydro Limited
renewable energy

ENVIRONMENT POLICY

Purpose

Snowy Hydro is committed to protecting the environment from harm arising from its business operations and will demonstrate this through actions based on the following principles and beliefs:

Statement

Protecting the environment from harm is important and worthwhile for environmental, economic and social reasons.

- We aim to avoid harm when planning for and carrying out work.
- Using water, energy and other resources efficiently benefits the environment and the business.

Complying with environmental legislation and regulatory requirements is the minimum standard we will meet.

Continually improving our systems and on ground practices is critical to achieving our commitment and is underpinned by:

- An evidence based understanding of our impacts on the environment in which we operate;
- Setting clear objectives and targets;
- Ensuring appropriate resources skills and practices for our workforce and contractors;
- Monitoring results and adjusting practices when required.

By openly communicating on our progress and performance we will demonstrate our commitment and capability.

Accountability

Managers and Supervisors:

- Ensuring and providing opportunities for employees and contractors to acquire and maintain the skills and knowledge necessary to carry out work in line with our environmental principles.
- Leading continual improvement and identifying opportunities to improve environmental performance and management efficiency.

All employees and contractors:

- Being aware of and accountable for their own actions and contribution to environmental performance.
- Identifying, assessing and controlling environmental hazards, managing risks and communicating whenever necessary.
- Reporting all incidents promptly and fully.
- Ensuring they acquire and maintain the skills and knowledge necessary to carry out work in line with our environmental principles, and
- Adhering to environmental procedures and providing feedback on their efficiency and effectiveness

Paul Broad
Chief Executive Officer
December 2017

Figure 2: Snowy Hydro Limited Environment Policy

3.0 Compliance Requirements Overview

The primary legislative requirements considered by this OEMP are those determined under;

- the *Environmental Planning & Assessment Act 1979* (EP&A Act) and delivered through the Project Approval and Concept Approval; and
- the *Protection of the Environment Operations Act 1997* (POEO Act) and delivered through EPL 13036.

The OEMP also addresses the Statement of Commitments contained within the Project's Environmental Assessment (EA) (refer Appendix C), and Submissions Report prepared by Parsons Brinckerhoff Australia Pty Ltd. It's noted that the obligations identified in these documents are primarily related to the construction period, or are managed by obligations under the Project Approval and/or EPL13036.

3.1 Project & Concept Approval Conditions

The Project Approval, history, and determinations by the NSW Department of Planning and Infrastructure now the NSW Department of Planning, Industry and Environment (DPIE) DPIE can be accessed on the DPIE Internet site for major projects.

http://majorprojects.planning.nsw.gov.au/

The Project was assessed as a Major Project under section 75B(1)(a) of the EP&A Act 1979 by the Minister for Planning, NSW Department of Planning and Infrastructure, and planning approval was granted on 31 July 2006. A summary of the Approval conditions is set out in the following table.

Table 1: Summary of Project & Concept Approval Conditions

Approval	Condition	Condition Category
PA	1.1 – 1.7	Terms of Approval, Limits of Approval
PA	1.8	Statutory Requirements
PA	1.9 – 1.13	Compliance
PA	2.1 – 2.3	Fuel Requirements and Limitations
PA	2.4 – 2.8	Air Quality Impacts
PA	2.9 – 2.13	Noise Impacts
PA	2.14 – 2.16	Soil and Water Impacts
PA	2.17	Water Cycle Management

PA	2.18 – 2.22	Waste Generation and Management
PA	2.23 – 2.26	Hazards and Risk
PA	2.27 – 2.29	Traffic, Transport and Aviation Impacts
PA	3	Environmental Monitoring and Auditing
PA	4	Community Information, Consultation and Involvement
PA	5	Environmental Management of construction and operational phases
PA	6	Environmental Reporting (Incident & Statutory)
CA	4	Compliance Monitoring and Tracking
CA	5	Community Information, Consultation and Involvement

3.2 Project Approval Modifications

The Project Approval may be modified with approval from DPIE to change the conditions under which Colongra operates. Should a modification be required, the application should be developed in consultation with the Snowy Hydro Water & Environment Group, who will coordinate preparation of the application and supporting environmental assessments that may be required.

The history of modifications to the Project Approval since originally approved by the DPIE is as follows.

- Modification 1 - Operational Noise Limits – determined 15/02/2007

Modification to the operational noise limits of the project.

- Modification 2 - Pipeline Construction Hours, Munmorah Gas Turbine Facility – determined 22/11/2008

Extension of construction hours for a three to four week period on Saturdays to 7.00 am to 6.00pm.

- Modification 3 - Increase to NOx emissions – determined 20/11/2014

The NOx emission limit for natural gas operation was amended to allow for a reasonable margin for compliance due to the intermittent nature and short duration of operation of the gas turbines.

3.3 Environment Protection Licence 13036

EPL 13036, history of variations, and determinations by NSW EPA can be accessed on the EPA Public Register.

http://www.epa.nsw.gov.au/prpoeoapp/

EPL13036 for Colongra was issued on 22 Apr 2009 under the Protection of the Environment Operations Act for the scheduled activity of 'Generation of electrical power from gas'.

The annual reporting period for EPL13036 is aligned to the financial year, commencing on 1 July.

The licence may be varied to change the operational conditions in a similar way as the Project Approval can be modified. Importantly, the licence may not be inconsistent with the Project Approval, consequently a change to an operational condition is likely to involve both approval from DPIE and the EPA.

3.4 Legislative Requirements

A summary of legislative requirements relevant to the Project was determined as part of the Project Environmental Assessment. A review of relevant approval requirements for Colongra is provided in the table below.

Table 2: Summary of Legislative Requirements

Legislation and Responsible Agency	Relevant Provisions	Licence / Approval Requirements
Environmental Planning & Assessment Act 1979 NSW Department of Planning and Environment (DPIE)	This Act provides the framework for environmental planning in NSW and includes provisions to ensure that proposals which have the potential to impact the environment are subject to detailed assessment.	Satisfy Concept Approval. Satisfy Project Approval. Satisfy Statement of Commitments. Concept and Project Approval received 31 July 2006.
Protection of the Environment Operations Act 1997 NSW EPA	This Act enforces licences and Conditions formerly required under separate Acts relating to air, water and noise pollution and waste management with a single integrated licence.	Satisfy EPL13036. As the Project is a scheduled activity, being an 'electricity generating works' that supplies more than 30 megawatts of electrical power, a licence is required covering both construction and operation. This is covered by EPL13036
The Protection of the Environment Operations (General) Amendment (National Pollutant Inventory) Regulation 2002	If a facility exceeds the thresholds for a listed National Pollutant Inventory (NPI) substance then the facility must report emissions of that substance to the NPI team within NSW EPA.	Annual NPI reporting dependent upon emissions and energy use thresholds. NPI reporting thresholds that the CPS facility is likely to exceed include annual combustion of over

NSW EPA		400 tonnes of any fuel and storage of over 0.394ML of diesel. If any reporting threshold is exceeded, an annual NPI report must be submitted either online or in hard copy to the NPI team.
National Greenhouse and Energy Reporting Act 2007 Commonwealth Clean Energy Regulator	Corporations that meet an National Greenhouse Energy Reporting (NGER) threshold must report their: Greenhouse gas emissions Energy production Energy consumption and Other information specified under NGER legislation.	Annual NGER reporting required. Snowy Hydro Corporation is required to submit annual NGER reporting for all facilities. Greenhouse gas emissions in tonnes CO_2 equivalent will be calculated for Colongra Power Station in accordance with the National Greenhouse and Energy Reporting (Measurement) Determination 2008. Emissions are calculated primarily from mass of fuel combusted and energy used by the facility.
Electricity Supply Act 1995 Division of Minerals and Energy within Industry & Investment NSW NSW Department of Water and Energy	This Act regulates network operations and electricity supply to establish a competitive retail market in electricity so as to promote efficient and environmentally responsible production. The Act confers powers to network operators to enable them to construct, operate, repair and maintain their electricity works.	A licence to supply electricity is required. Licence granted. Colongra Power Station is registered as a Generator of Electricity under the National Electricity Rules by the National Electricity Market Management Company. Registration is effective from and including 20 May 2009.
Pipelines Act 1967 and Pipeline Regulation 2005 Division of Minerals and Energy within Industry & Investment NSW and EPA	This Act regulates pipeline construction, operation and maintenance of pipelines.	A licence to construct and operate a pipeline is required. Licence granted. Licence No. 33 was granted to Jemena by the Minister for Energy on 29 November 2007, and varied on 29 May 2008.

3.5 Tracking compliance

A compliance register has been developed for the operational period of the project and is maintained in the Snowy Hydro Incident Management system. Within the incident management system accountabilities are allocated for monitoring and implementing each compliance obligation.

Compliance obligations including statutory reporting, and monitoring obligations identified in the Project and Concept Approvals, and EPL13036 are included in the Snowy Hydro Planning & Scheduling System Ellipse. The system is used to assign and track required activities at a site level, and including environmental compliance related activities such as scheduled site inspections, maintenance of monitoring equipment, and annual stack emissions testing.

Changes in operations including changes to assets and their configuration are recorded in the Snowy Hydro Corporate Asset Change Management system. The system provides notifications to the Water & Environment Group on a daily basis and at the design review stage so that changes that may impact environmental compliance can be addressed.

Where non-compliances with statutory requirements are identified, these are recorded as incidents in the Snowy Hydro incident management system, and tracked in that manner. Each incident is investigated as appropriate, with corrective actions identified, with implementation of actions monitored through to completion.

Specific aspects of the program used to provide oversight for compliance include:

- Compliance registers prepared by external consultants for NSW gas-fired power station legislative requirements.
- Snowy Hydro's compliance management system as a record of identified compliance obligations.
- Receipt of regular updates to legislation that may affect the compliance obligations.
- External auditing including independent environmental auditing as set out in the Project Approval, and external environmental management system audits as required by Snowy Hydro's ISO14001 system.
- Internal environmental audits of management plan aspects or system components
- Monthly review of emissions to air data from the sites continuous emissions monitoring system
- Reviews and updates of this OEMP; and

Compliance is reported in the Annual Environmental Management Report to DPIE , and Annual Return to the EPA.

Within Snowy Hydro compliance is reported monthly to the operations executive committee and then to the Snowy Hydro Board. The reports to the operations executive include any identified non-compliances with operational environmental licences.

4.0 Environmental Management

4.1 Environmental Aspects, Impacts and Risk

An Aspects and Impacts Register is maintained for environmental aspects associated with gas turbine operations at Snowy Hydro. Colongra is incorporated into the register which is maintained in the Snowy Hydro document management system. Each aspect is risk assessed and compared against other environmental aspects in order to identify the most significant environmental risk.

The Aspects and Impacts Register contains information regarding environmental aspects and their actual and potential impacts on the environment, operational controls which mitigate the potential impacts, a risk rating for each aspect, identification of significant environmental aspects based on risk ratings.

The Register is reviewed annually as well as following any significant change in management or maintenance that might create a new aspect or change a current risk rating, and in response to a major non-conformance or complaint which identifies a new aspect or risk.

4.2 Environmental Management Responsibilities

During normal business hours Colongra is manned by a Plant Manager, Manager of Planning and Scheduling, six Production Technicians and an administrative support officer. The Plant Manager is responsible for the management and safe operation of Colongra Power Station.

The site is remotely operated from the Snowy Mountains Control Centre (SMCC) in Cooma which provides remote monitoring of critical site alarms and conditions. Normal generation start and stop control will be provided by SMCC during and after normal business hours. SMCC will provide the necessary interaction between other network controllers, such as AEMO and Transgrid.

Should local support be required after hours, the site Production Technicians will be available on a rostered on-call basis. Environmental, Safety, Production and Engineering support will be provided by the relevant departments based in Cooma as required.

The organisation chart for Colongra is set out in **Figure 4** below and roles and responsibilities for environmental management summarised in **Table 3**.

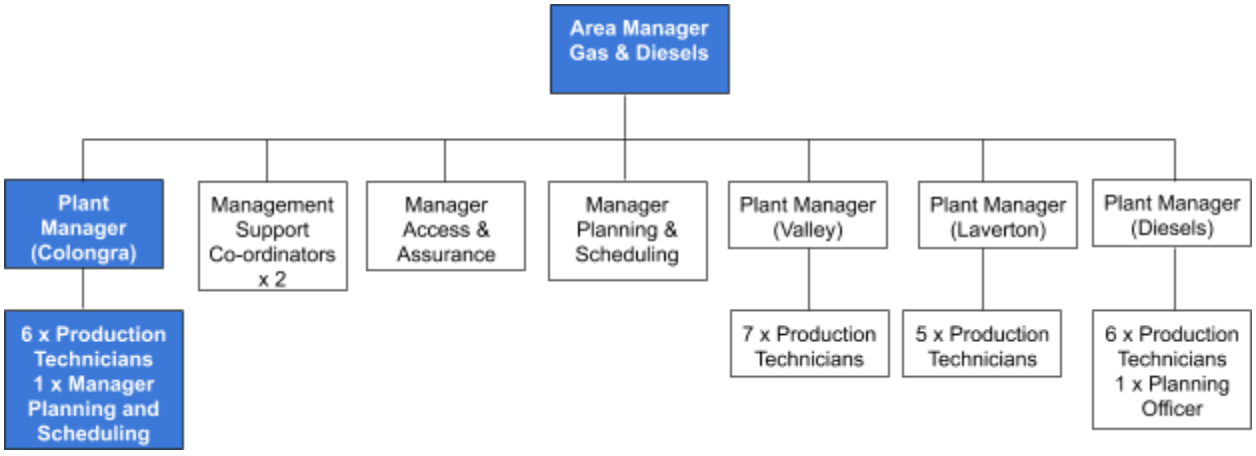


Figure 4: Organisation structure of Gas & Diesels including Colongra

Table 3: Summary of Colongra Power Station Personnel Responsibilities

Title	Summary of Responsibilities
Colongra Plant Manager	• Overall responsibility for the environmental performance of Colongra Power Station, including compliance with environmental regulatory requirements. • Ensure environmental aspects and impacts are understood and associated risks are managed, and that adequate operational and management procedures are in place. • Ensuring appropriate levels of human, physical and financial resources are provided for environmental management of the site. • Ensuring that Colongra Power Station personnel and contractors are made aware of environmental management measures, and receive appropriate training. • Ensure all incidents (environmental, safety and quality) are reported and investigated, operational controls are amended as required, and communicate with regulatory agencies as required. • Proactively communicate environmental issues within Snowy Hydro.
Colongra Operator in Charge (OIC) and SMCC Controller	• Operate the gas turbine generators within the environmental limits and shut down the units if the environmental limits cannot be achieved. • Ensure all incidents (environmental, safety and quality) are reported and investigated, operational controls are amended as required, and communicate with regulatory agencies as required. • Proactively communicate environmental issues within Snowy Hydro.
Colongra Production Technicians	• Familiarisation with OEMP requirements and environmental compliance requirements applicable to Colongra. • Support reviews of environmental aspects and risks, and implementation of operational and management procedures. • Ensuring that all plant and equipment documentation, maintenance routines and maintenance records are adhered to and/or carried out. • Organising and maintaining materials transfer (e.g. waste, chemicals, bulk materials etc) to, from and around site. • Inspect and maintain plant and equipment in accordance with all relevant manuals, schedules, procedures and/or instructions, including that environmental controls are operating effectively.

	• Oversee the operation and maintenance of the Continuous Emission Monitoring System (CEMS), and provide reports from the system as required. • Responding to any environmental emergency and initiating action to limit or rectify any environmental impacts, including actions set out in the Colongra Power Station Emergency Response Handbook. • Report and investigate environmental incidents and complaints, and participate in investigations as required. • Notify Water & Environment group, Colongra Plant Manager of any suspected environmental incident, non-compliance or non-conformance.
Environment Manager	• Review and update the OEMP and ensure environmental regulatory requirements, including monitoring, maintenance and recording requirements, are complied with and necessary reports and documents are prepared and submitted. • Initiate and facilitate reviews of environmental aspects and risks, and development of operational and management procedures. • Identifying, maintaining and communicating changes in regulatory requirements, and tracking compliance with those obligations. • Communicating the results of environmental audits, investigations, and incidents, and undertaking internal environmental reporting and external communications. • Development, scheduling and presentation of environmental training and awareness. • Attend meetings and presentations with environmental regulators and community forums. • Scheduling and participating in audits. • Advise on incident reporting, management, lead investigations, and provide assurance of preventative and corrective actions.

4.3 Reporting & Notification

4.3.1 Internal Incident Reporting

Environmental incidents at Colongra are managed in accordance with the Snowy Hydro procedure QP14-07 Incident Management Procedure, and classified in accordance with the Safety and Environment Incident Classification Matrix, which uses four categories to define the level of an incident's consequence. Incident management procedures are accessible on the Snowy Hydro Intranet, which provide guidance on internal notification and investigation requirements.

Any environmental incident or near hit including non-compliances and community complaints should be reported in the event management system and communicated to the Water & Environment Group.

4.3.2 Pollution incident threatening material harm

Response in the event of an incident threatening harm is set out in the Colongra Emergency Response Handbook. This should be referred to in that circumstance. The Pollution Incident Response Management Plan (PIRMP) referred to below is contained in the Snowy Hydro Emergency Response Handbook.

In the event of a pollution incident causing or threatening material harm to persons or the environment, Snowy Hydro will enact it's Pollution Incident Response Management Plan (PIRMP) required under Environment Protection Licence 13036.

The incident causing or threatening harm is to be immediately notified to the relevant regulatory authorities in accordance with the Protection of the Environment Operations Act s148. These may include:

- NSW EPA.
- NSW Health (local Public Health Unit).
- WorkCover NSW/ComCare.
- Local Council; and
- Fire and Rescue NSW.

Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations). It does not include an incident or set of circumstances involving only the emission of noise.

The PIRMP contains relevant contact details and also process used to notify the local community in the vicinity of Colongra, should they be potentially impacted by the pollution. The internal PIRMP is available on the Snowy Hydro Intranet page, and public version of the PIRMP is accessible on the Snowy Hydro external website.

4.3.3 Statutory Environmental Reporting

The table below summarises the statutory reporting requirements specified in EPL13036, the Project Approval, and national emissions reporting requirements.

Table 4: Statutory Reporting Requirements Summary

Requirement	Reference	To	Timing
Annual Environmental Management Report	PA Condition 6.3	NSW DPIE	Within 12 months of commencement of operation and annually thereafter. The annual reporting period since the transfer of ownership to Snowy Hydro is defined by 30th January, with the report submitted to DPIE in the two months following.
EPA Annual Return	EPL Condition R1.1	NSW EPA	Reporting period defined as the financial year. Annually within 60 days of 30 June.
Hazard Audit Report	PA Condition 3.7	NSW DPIE	Within 12 months of commencement of operation and every three years thereafter.
Environmental Audit Report	PA Condition 3.8	NSW DPIE	Within 12 months of commencement of operation and every three years thereafter.
National Pollutant Inventory (NPI) Report	POEO (General) Regulation 2009, Chapter 4, Part 2	NSW EPA	Annually prior to 31 March unless otherwise determined with the NSW EPA.
National Greenhouse and Energy Reporting Report	*National Greenhouse and Energy Reporting Act 2007*	Department of Climate Change	Annually prior to 31 October. Registration must be completed by 31 August for the year that an emissions threshold is tripped.

4.4 Training

Training at Snowy Hydro is developed within the procedure QP 18-01 Training and Development, and is administered in the I-learn training database which maintains training requirements for individuals and completion records of training attended. Personnel working at Colongra receive training relevant to their role and the required skills to fulfil their role in a competent manner.

Environmental related training includes:

- **Site Awareness Induction**: all new employees and contractors are given an Induction before duties can be taken up. The Awareness Induction includes an Environment section.
- **Environmental Standards Handbook Training**: provides environmental awareness training and setting of expectations around the standards expected at Snowy Hydro sites.
- **Operational Risk Training**: all employees are trained through a three stage program beginning with behavioural safety, application of operational risk processes, and incident management.
- **Environmental Compliance Training**: outlines compliance obligations at Colongra for all personnel at site, the nature of the obligations and personnels' duties with regard to compliance.
- **Incident investigation training**: selected employees responsible for leading incident investigations are trained in the Incident Cause & Analysis Method (ICAM) of incident investigation.
- **Specialised Environmental training**: specific issues and activities may require further training or briefings, for example in the use of spill kits, notification requirements to regulators in the event of an incident; and
- **Pollution response training** : the Pollution Incident Response Management Plan is tested annually providing an exercise and training in the practices under that plan.

4.5 Environmental Management Plans

The following environmental issues are considered to warrant specific management actions for the operation of Colongra. These issues have specific regulatory requirements (contained in the Project Approval or Environmental Protection Licence 13036), are considered to have the highest potential to result in a non-compliance with a legislative requirement or generate community complaints, and/or have been identified as the most significant environmental aspect.

The following management plans provide further detail and are set out in the following sections.

- Air Quality Management Plan.
- Water Management Plan.
- Noise Management Plan.
- Waste Management and Re-use Plan; and
- Fuel Use Management Plan.

4.5.1 Air Quality Management Plan

<table>
<tr><td>Objectives</td><td>To ensure emissions are within the air quality limits contained in the DPIE Project Approval and EPA Environment Protection Licence.</td></tr>
<tr><td>Statutory Requirements</td><td>Protection of the Environment Operations Act 1997 and Regulations.
Protection of the Environment Operations (Clean Air) Regulations 2002.
Environmental Planning & Assessment Act 1979 and Regulations.
Project Approval
Environmental Protection Licence 13606.</td></tr>
<tr><td>Performance Criteria</td><td>EPL13036 and Project Approval emissions limits
Monitoring specified in EPL13036 and Project Approval</td></tr>
<tr><td>Sources</td><td>Emissions stacks, identified in Appendix A</td></tr>
<tr><td>Major Components and Quantities</td><td>The following provide indicative emissions characteristics as reported in commissioning emission testing (Worswick 2009)
<table>
<tr><td rowspan="2">Parameter</td><td rowspan="2">Units</td><td colspan="4">Emissions per unit</td></tr>
<tr><td>Gas fired - 100% load</td><td>Gas fired – 65% load</td><td>Diesel fired – 100% load</td><td>Diesel fired – 65% load</td></tr>
<tr><td>No. units operating</td><td>-</td><td>4</td><td>4</td><td>4</td><td>4</td></tr>
<tr><td>Fuel</td><td>-</td><td>Gas</td><td>Gas</td><td>Diesel</td><td>Diesel</td></tr>
<tr><td>Exit Velocity</td><td>$m.s^{-1}$</td><td>35.75</td><td>26.67</td><td>37.09</td><td>28.23</td></tr>
<tr><td>NO_x (as NO_2)</td><td>$mg.Nm^{-3}$</td><td>34.1</td><td>27.5</td><td>68.3</td><td>81.7</td></tr>
<tr><td>PM_{10}</td><td>$mg.Nm^{-3}$</td><td>-</td><td>-</td><td>5.1</td><td>6.9</td></tr>
</table></td></tr>
<tr><td>Mitigation Measures</td><td>Design & Commissioning
The gas turbine facility has been modelled and designed so as to ensure stack emissions and air quality falls within the regulatory levels.
The height of the stacks (35 metres), and the high temperature and vertical velocity of the plume leaving each stack (more than 500 degrees Celsius and approximately 40 metres per second respectively) ensure the emissions leaving each stack rise vertically</td></tr>
</table>

<table>
<tr><td></td><td>high above the facility in a matter of seconds increasing dispersion of emissions.

• The Manufacturers Commissioning Engineers complete the testing and tuning program on the turbines before operational handover to ensure efficient operation of plant.

• Former construction areas are rehabilitated to minimise fugitive dust emissions. All roads on site are sealed.

Operational Controls

• The turbine features an annular combustion chamber with low nitrogen oxides (NOx) EV burners, which keeps NOx emissions from the turbine within regulatory requirements.

• Original Equipment Manufacturers and Production Operating Procedures.

• Operating Instructions requiring minimum MW output point and emissions controls function; and

• Alarming to ensure environmental limits are met.

Management Controls

• Monthly review continuous emissions monitoring system (CEMS) data.

• The employment of suitably qualified personnel; and

• Appropriate training and demonstrated Operations Staff competence.</td></tr>
<tr><td>Monitoring</td><td>Design & Commissioning
During commissioning, emissions were verified against emission estimates used to produce the modelled predictions and assessment of potential impacts upon which the project was approved.

Post Commissioning Monitoring
Each of the four exhaust stacks has been fitted with in-stack monitoring equipment as part of a continuous emissions monitoring system (CEMS), that meets the requirements in the Project Approval and EPL.

In stack monitoring of emissions is undertaken at two frequencies:

• On a continuous basis for oxides of nitrogen.

• Annually for parameters listed in the following table.

<table><tr><td>Pollutant / parameter</td><td>Units</td><td>Method</td></tr></table></td></tr>
</table>

	<table><tr><td>Nitrogen dioxide (NO_2) or nitric oxide(NO), or both (as NO_2)</td><td>$mg.m^{-3}$</td><td>CEM-2</td></tr><tr><td>Velocity</td><td>$m.s^{-1}$</td><td>TM-2</td></tr><tr><td>Volumetric flow rate</td><td>$m^3.s^{-1}$</td><td>TM-2</td></tr><tr><td>Temperature</td><td>°C</td><td>TM-2</td></tr><tr><td>Moisture content in stack gases</td><td>%</td><td>TM-22</td></tr><tr><td>Dry gas density</td><td>$kg.m^{-3}$</td><td>TM-23</td></tr><tr><td>Molecular weight of stack gases</td><td>$g.gmol^{-1}$</td><td>TM-23</td></tr><tr><td>Carbon dioxide</td><td>%</td><td>TM-24</td></tr><tr><td>Oxygen</td><td>%</td><td>TM-25</td></tr></table> [IS1]
Maintenance	• Turbine equipment is performance tested, tuned and emission guarantees confirmed during the projects commissioning phase to ensure that the manufacturer's standard has been delivered. • All equipment is maintained according to Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules (held onsite).
Responsible Persons	Colongra Plant Manager / Colongra Production Technicians/ Environment Manager.
Reporting	• Site personnel report internal incidents in the incident management database in the event of a non-compliance with environmental requirements. • The Environment Manager publishes a summary of monthly emissions monitoring on the Snowy Hydro Internet site. • Non-compliances are reported through the Snowy Hydro Operational Executive Committee; and • Compliance and monitoring results are reported to NSW Planning and NSW EPA in the respective annual performance reports.
Corrective Actions	**Stack Emissions – Contingency Plan** If emission limits are exceeded during plant operation the following will occur: • Controllers will follow the Operating Instruction and response in the event of an emissions exceedance in conjunction with Colongra personnel.

	• The Production Technicians will initially follow the manufacturer's operating manual. This will allow operators to fault find plant issues to bring the Unit(s) back within specification. The Production Technicians will be trained in the use of the operating manual. • At the completion of working through the manufacturer's operating manual, if high emission levels are still being experienced, the Production Technicians 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 professional assistance will be sought to undertake the required work to bring the Unit(s) back within emission specification; and • If the fault is a CEMS fault, the operator will seek to verify if the Unit(s) is running within emissions limits. This might be done with a combination of previous NOx data, fuel use rates, confirmation of dry low NOx operation, or utilising gross NOx data if the fault is after the physical emissions measurement and is related to correction or software. This is as per the EPA Guidelines on Publishing Monitoring Data which provide for short periods of instrument breakdown to be considered in the same way as instrument downtime.

4.5.2 Water Management Plan

<table>
<tr><td>Objectives</td><td>To ensure the design 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.</td></tr>
<tr><td>Statutory Requirements</td><td>Project Approval and EPL13036
Protection of the Environment Operations Act 1997 and Regulations.
Environmental Planning & Assessment Act 1979 and Regulations.
Environmental Protection Licence 13606.</td></tr>
<tr><td>Performance Criteria</td><td>Compliance with Environmental Protection Licence 13036</td></tr>
<tr><td>Sources</td><td>
<table>
<tr><th>Source</th><th>Expected volumes</th></tr>
<tr><td>Stormwater – oil silt trap</td><td>Designed to treat rainwater flow equivalent to 1 month Average Recurrence Interval (ARI) rainfall event</td></tr>
<tr><td>Stormwater – oily waste discharge pipe</td><td>Designed to 50 year ARI</td></tr>
<tr><td>Stormwater – oily pit</td><td>230 m^3</td></tr>
<tr><td>Oil / water separator</td><td>Separator designed to treat oily waste at 72m^3 / hr</td></tr>
<tr><td>Sewage</td><td>Sewage is contained in an onsite tank and pumped out and trucked away for disposal.</td></tr>
</table>
Appendix C illustrates the sources of both clean and dirty waste water areas on-site, and drainage systems.

Water balance
Colongra requires demineralised water, predominantly for nitrogen oxide (NO_x) suppression during periods when the facility is required to operate using diesel fuel. Demineralised water is also required for offline compressor washing. Potable water is used for air intake evaporative cooling. The breakdown of water consumption for the Colongra gas turbine facility is provided in the following tables based on data from the EA (Parsons Brinckerhoff 2005).
</td></tr>
</table>

Potable Water Consumption Breakdown

Purpose	Units	Natural Gas Firing Mode(1)	Diesel Fuel Firing Mode
Evaporative cooling	Megalitres per year	5.6 (2) 6.5 (3)	0.98(4)

Notes: 1 Assuming evaporative cooling water is used 10% of runtime (11kg/sec per unit at full load = 67ML)
2 Calculated based on gas turbine facility operating 425 hours per year using natural gas
3 Calculated based on gas turbine facility operating 500 hours per year using natural gas
4 Calculated based on gas turbine facility operating 75 hours per year using diesel fuel

Demineralised Water Consumption Breakdown

Purpose	Units	Natural Gas Firing Mode	Diesel Fuel Firing Mode(1)
Water injection for NO_x suppression during diesel-fuel firing mode	Megalitres per year	0	12.0
Gas compressor washing	Megalitres per year	0.012	0.012

Notes: 1 Calculated based on gas turbine facility operating 75 hours per year using diesel fuel. Ratio of demineralised water to diesel fuel = 0.97 at full load. This results in 10.4 litres/sec per unit at full load

It should be noted that expected operating hours are less than 100 per year using natural gas and minimal hours using diesel, which would result in far lower actual water consumption than shown in the above table.

Mitigation Measures

Wastewater treatment

- Stormwater is treated in an oil/silt trap to prevent oil discharge to the environment. Stormwater then exits the site via TP6 onto Generator Property Management (GPM) land, and then to the Munmorah Power Station outlet canal.
- Water from dirty water areas is sent to the oil/water separator before being discharged via TP6.
- Water used for gas turbine offline washing is collected in a pit prior to being pumped out for licence disposal offsite.

Oil / Chemical Spill Control

- The diesel storage tank and entire facility are contained within bunded areas.

	• The volume of diesel in the diesel tank is managed to be less than 110% of the volume of the bund.
	• The site has a dedicated oil/chemical store with internal bunding and is fully enclosed.
	• All areas within the gas turbine enclosure drain to the oil/water separator collection pit.
	• A oil/water collection pit and an oil/water separator have been installed on-site to collect and treat all stormwater/spills from:
	  ○ Fuel Oil Storage Tank area.
	  ○ Fuel Oil Unloading area.
	  ○ Transformers area.
	  ○ Gas turbine floor drain.
	  ○ Gas Turbine enclosure drain.
	• Site personnel are trained in appropriate spill response strategies and spill kit using the Colongra Emergency Response Handbook (Available on Intranet).
	• Spill kits are available on site to clean up spills and leaks, and located at areas where hazardous materials are stored or handled.
	• Oil water separator is operated as per manufacturer's guidelines.
	• Hydrogen Peroxide (H2O2) will be dosed in summer months when the evaporative coolers are in service as the evaporative cooler biocide. It is not considered to be a risk for water discharge due to the distance between the dosing point and the oily water separator pit. H2O2 would be consumed in the evaporator cooling holding tank and in the connecting pipework between the tank and oily water pit. H2O2 rapidly breaks down into water and oxygen with little or no residual.
	• Sodium nitrite and Sodium metaborate are used as the biocide for the closed cooling water system which is not released unless drained for maintenance. The drainage line runs to the waste water pit for containment, and is then pumped out for correct disposal off-site; and
	• Cooling water that may spill into the stormwater system is treated in the same way as contaminated water via the oil/silt trap.

Monitoring	• The Colongra EPL and the Project Approval do not specify water discharge

	monitoring. In the event of any uncontrolled surface water discharge from the site, the discharge will be monitored should there be concerns in relation to water quality. Depending upon the source of the water, parameters to be monitored might include, pH, Total Dissolved Solids, Suspended Solids, Dissolved Oxygen, Heavy Metals, Trace Elements and Total Oil and Grease. • Six monthly monitoring of discharge from the oily water separator pit is performed for physical parameters and oil and greases.
Responsible Person	Colongra Plant Manager / Colongra Production Technicians / Environment Manager
Reporting	• Incident reporting will be undertaken as set out in the Snowy Hydro Incident Management procedure. • Should notification to the EPA or regulatory authorities be required, the Environment Manager shall be responsible for making the notification and any subsequent reports.

4.5.3 Noise Management Plan

<table>
<tr><td></td><td></td></tr>
<tr><td>Objectives</td><td>To minimise noise impacts on the surrounding community from the power station's operations.</td></tr>
<tr><td>Statutory Requirements</td><td>Project Approval and Environment Protection Licence.
Protection of the Environment Operations Act 1997 and Regulations.
Protection of the Environment Operations (Noise Control) Regulations 2000.
Environmental Planning & Assessment Act 1979 and Regulations.</td></tr>
<tr><td>Performance Criteria</td><td>Compliance with Environmental Protection Licence 13606, Project Approval, and NSW Industrial Noise Policy.</td></tr>
<tr><td>Sources</td><td>Noise sources associated with the Colongra gas turbines include:
air intake.
turbine/generator noise radiated from the enclosure.
duct noise from the exhaust stack; and
intermittent noise is also created by each units' blowdown vent during unit shutdown.</td></tr>
<tr><td>Operational Noise Level Criteria</td><td>The table below summarises the relevant operational noise level criteria for locations identified on EPL13036.<table><tr><th>Receiver location</th><th>Day (7:00am to 6:00pm Mondays to Saturdays and 8:00am to 6:00pm Sundays and Public Holidays)</th><th>Evening (6:00pm to 10:00pm on any day)</th><th>Night (10:00pm to 7:00am Mondays to Saturdays and 10:00pm to 8:00am Sundays and Public Holidays)</th></tr><tr><td></td><td>$L_{Aeq, 15min}$ (dBA)</td><td>$L_{Aeq, 15min}$ (dBA)</td><td>$L_{Aeq, 15min}$ (dBA)</td></tr><tr><td>Sunnylake Caravan Park</td><td>40</td><td>40</td><td>40</td></tr><tr><td>Macleay Avenue (no residence at</td><td>45</td><td>45</td><td>45</td></tr></table></td></tr>
</table>

	<table><tr><td>this location)</td><td></td><td></td><td></td></tr><tr><td>Woolana Avenue, Halekulani</td><td>41</td><td>41</td><td>41</td></tr><tr><td>Ulana Avenue, Budgewoi</td><td>41</td><td>41</td><td>41</td></tr><tr><td>Barego Close, Buff Point</td><td>39.5</td><td>39.5</td><td>39.5</td></tr><tr><td>Barker Avenue, San Remo</td><td>40</td><td>40</td><td>40</td></tr><tr><td>Denman Street, Colongra</td><td>39.5</td><td>39.5</td><td>39.5</td></tr></table> $L_{Aeq, 15min}$ = Equivalent noise level (15-minute average) At wind speeds up to 3m.s^{-1} and (measured at 10 metres above ground level), or under temperature inversion conditions of up to 3°C/100m
Mitigation Measures	**Design & Commissioning** • To confirm that Colongra meets the specified noise criteria, a review of the noise emission data and noise predictions was undertaken during the detailed design phase, where actual plant specifications and characteristics were known. • Post commissioning noise source emissions and ambient noise monitoring levels may be measured to confirm the noise levels received at the nearest residential locations are consistent with the noise predictions stipulated in the Project EA. This is likely to occur in response to a complaint in order to verify noise levels. **Management Controls** • Appropriate training and demonstrated Operator competence in operations. • Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules to ensure all site plant is maintained for optimal performance and reduced noise levels. **Operational Controls** • Noise is fundamentally managed by the design of the generating units.

	• Operational Procedures that assist in managing noise emissions 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.
Monitoring	Observations of on-site noise levels are made by site personnel during walk arounds and operations, to identify if any unusual noise has developed. Monitoring and management of noise is a complaint driven process, and 'active' monitoring of noise during operations is not undertaken. Noise monitoring may be undertaken: • During performance testing of the power station, such as during commissioning and the noise verification process that was part of the Project Approval process. • As required to ensure performance or when changes in operating circumstances are planned that have the potential to increase noise emissions. • As required after a community complaint, in order to verify the basis of the complaint and identify the potential extent of any issue.
Maintenance	• All plant and equipment, including vehicles, are properly maintained in order to minimise noise generation. • All Colongra Power Station plant and equipment are maintained according to Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules
Responsible Persons	Colongra Plant Manager / Colongra Production Technicians / Environment Manager.
Reporting	Monitoring results at residential receivers would be submitted to DPIE in the Annual Environmental Management Report, and in the EPA Annual Return.
Corrective Actions	Corrective action is required to be undertaken immediately after a complaint is made or non-conformance identified. In the event of a complaint regarding noise emissions the following actions shall be undertaken as appropriate to the circumstances:

	• the complainant will be actively communicated with so that they are aware actions are being taken to assess the complaint. • assessment of compliance with the relevant guidelines, Project Approval or Environment Protection Licence Condition. • an investigation to determine if a particular noise source was the cause of the problem or non conformance. • review of climatic conditions occurring at the time of the complaint to determine if they were unfavourable for noise propagation towards the complaint's location. • measure sound power and pressure levels emitted from equipment identified as the likely source of the problem and review possible mitigation techniques. • modify work practices as necessary to reduce the duration or level of noise; and • consultation with the EPA and DPIE where required.

4.5.4 Waste Management and Reuse Plan

Objectives	To prevent or minimise any adverse environmental impacts from wastes and to minimise their generation, to maximise their reuse and recycling, and to ensure safe disposal of all waste.
Statutory Requirements	• Protection of the Environment Operations Act 1997. • Protection of the Environment Operations (Waste) Regulations 2005. • Waste Avoidance and Resource Recovery Act 2001 & associated Regulations. • Project Approval and Environment Protection Licence; and • Waste Classification Guidelines.
Performance Criteria	Adherence to any relevant permit and/or licence. All waste is reused or recycled where possible. Wastes are disposed of in accordance with the Waste Classification Guidelines and appropriately tracked.
Sources	Refer to Waste Classification Guidelines – Part 1: Classifying Waste to determine classification of waste as either: • special waste. • liquid waste. • hazardous waste. • restricted solid waste. • general solid waste (putrescible); or • general solid waste (non-putrescible). Refer to the EPA waste tracking website for fact sheets regarding identification and handling of trackable waste.
Mitigation Measures	All Special, Hazardous and Restricted solid waste (as defined by Waste Classification Guidelines – Part 1: Classifying Waste) that may be generated on site will be appropriately segregated for storage and separate disposal by a waste transporter licenced by the EPA. All Liquid waste can be classified as: • non-controlled aqueous (water containing filterable and non-filterable solids but not contaminated with suspended or dissolved chemicals); and

	• classified liquid waste (oil, solvents, flammable liquids). All classified liquid waste must be stored in designated liquid waste storage areas, and disposed of by a licenced waste transporter. • All Trackable waste as defined by the EPA ((NSW EPA Website Link)must be tracked according to EPA requirements and disposed of at a licenced facility. Dockets must be received from the driver and/or via the online system. • General solid waste is segregated into ○ Non-putrescible, e.g. bricks, concrete, timber, metals, glass, paper, rags and oil absorbent materials not containing free liquids, general building waste; and ○ putrescible, e.g. green/organic waste, domestic waste. • General solid waste (non-putrescible) is also segregated at source into: ○ recyclable material (including glass, paper, scrap metal, aluminium cans, timber and wood gardening waste) is separated into general waste, paper/cardboard, and oily wastes and ○ non-recyclable waste (oily rags, oil filters, used absorbent, old chemical/paint/fuel/oil drums). • Recyclable material is transferred by a licenced waste carrier to an appropriate recycling facility where possible. • Non-recyclable, and non-putrescible general solid waste is transferred to an appropriate disposal facility. • Waste is stored neatly in clearly labelled bins or stockpiles, with hazardous wastes stored in such a manner that stormwater run-off does not come into contact with the waste.
Monitoring	Individual Contractors are responsible for monitoring housekeeping, waste collection, storage, and disposal procedures and facilities. Surveillance of site waste minimisation and disposal guidelines shall be conducted as part of the weekly walkthrough inspections by Colongra Production Technicians.
Maintenance	All signage, disposal areas, plant and equipment, are properly maintained in order to maximise staff awareness, minimise waste generation and maximise waste re-use and recycling. All power station plant and equipment are maintained according to Plant Operating, Maintenance and Calibration Manuals, Procedures & Schedules.
Responsible	Where waste requires disposal by a licenced contractor, Colongra personnel shall

Person	be responsible for organising the disposal, including waste from contractors activities. Colongra Plant Manager / Colongra Production Technicians/ Environment Manager.
Reporting	Use, disposal, and management of waste may be reported in the Annual Environmental Management Report to NSW DPIE .
Corrective Actions	In the event of a failure to comply with the OEMP, a permit or licence condition, an investigation may be undertaken to determine the cause, and corrective actions identified, including modification of any work practices or waste management procedures as necessary to improve waste management.

4.5.5 Fuel Use Management Plan

Objectives	To ensure fuel is used in accordance with the Project Approval and Environment Protection Licence 13036.
Statutory Requirements	Any Conditions of licences or permits under the: • *Protection of the Environment Operations Act 1997* and Regulations. • *Protection of the Environment Operations (Clean Air) Regulations 2002*. • *Environmental Planning & Assessment Act 1979* and Regulation; and • Environmental Protection Licence 13606.
Performance Criteria	Compliance with Project Approval and Environment Protection Licence 13036 Diesel use shall not exceed 75 hours in any 12 month period. Quarterly samples are collected of diesel as required by NGERS regulations.
Sources	**Natural gas** Natural gas is delivered to Colongra via the Sydney – Newcastle gas pipeline, compressor station, and lateral pipeline. The offtake facility and compressor station located on and adjacent to the Sydney – Newcastle gas pipeline at Bushells Ridge is owned, operated and maintained by Jemena , as is the lateral pipeline and letdown station. The Colongra lateral pipeline is approximately 8.6km in length and includes approximately 4km of looped 1,067mm diameter storage pipeline. The letdown station is comprised of a water bath heater and pressure regulating valves. The letdown station is relevant to Colongra environmental operations as data is required from Jemena in order for the Colongra facility to calculate it's greenhouse emissions and meet it's statutory reporting requirements. **Diesel fuel** The capacity of the diesel storage tank is 1.8ML, however the bund volume limits the operating tank volume to 1.367ML. Diesel fuel is delivered to site by road tankers. Procedures are in place to ensure that the fuel oil tank's maximum storage capacity is maintained below 1.37ML, ensuring it is within 110% of the diesel tank bund capacity. The current operating capacity of the tank is sufficient to supply four units at full load for approximately seven hours.
Requirements	The Operating Instruction for Colongra includes fuel use limitations as set out in the Project Approval and EPL13036. The relevant conditions relating to diesel use are set out in this section. Natural gas shall be used preferentially, with diesel use shall not exceed 75 hours in any 12 month period, except in the following circumstances.

	• to manage network system constraints, or • in the event of failure of existing major electricity generating facilities, or • in the event of failure of natural gas supplies, or • in the event of State or regional system shutdown (black start) situation, or • if cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability, or • at the direction of the Australian Electricity Market Operator (AEMO) . The emergency diesel generators must only be used for: • emergency black start as specified in the environmental assessment. • for testing and maintenance of the units.
Monitoring	To satisfy National Greenhouse and Energy Reporting System (NGERS) requirements a sample of diesel fuel must be taken quarterly or after each delivery. Analysis of each sample is to include • Specific energy (test method ASTM D240). • Carbon content (test method ASTM D5291). • Density (test method ASTM D1298). Generation hours on diesel are reviewed monthly by the Water & Environment Group as part of the monthly emissions review.
Responsible Persons	Colongra Plant Manager / Colongra Production Technicians / Environment Manager
Reporting	• Where diesel operation occurs outside the requirements identified in the Project Approval and EPL13036, this shall be reported in the Annual Environment Management Report (AEMR) and EPL13036 Annual Return. • Fuel analysis sampling results are used to report annual greenhouse emissions.
Corrective Actions	• Where requirements of this management plan are breached, the event will be reported in the Snowy Hydro incident management system and investigated as appropriate.

	• If the non-conformance relates to diesel fuel sampling, additional samples shall be organised and collected to ensure sufficient information is available to calculated greenhouse emissions. • Corrective actions may be required where diesel samples are not collected as required, with additional samples collected as necessary. • Should the operating limit for diesel be exceeded, or operation occur outside the circumstances identified above, a non-compliance will be reported in Snowy Hydro's internal systems, and briefings held with operational business units to reinforce the awareness of the requirement. • A variation to EPL13036 or modification to the Project Approval may be sought after appropriate environmental assessment into the extension of operating hours on diesel.

4.5.6 Complaints Management Plan

Performance Objective	To ensure that an appropriate response is made to public complaints in relation to Colongra operations.
Statutory Requirements	Project Approval and Environment Protection Licence *Protection of the Environment Operations Act 1997* and Regulations. *Environmental Planning & Assessment Act 1979* and Regulations.
Performance Criteria	A contact number and mechanism is in place for the public to contact Snowy Hydro • All complaints are recorded as incidents in Snowy Hydros event management system. • All complaints responded to expeditiously and investigated.
Responsible Person	The Colongra Plant Manager is responsible for receiving complaints and ensuring that each complaint is recorded in Snowy Hydros event management system, responded to and investigated appropriately. This is likely to include drawing on resources from other departments as required, including Corporate Affairs and/ or the Water & Environment Group.
Implementation Strategy/ Mitigation Measures	In compliance with Project Approval Condition 4.3, a complaints register is required. Complaints are managed through the Event Management system at Snowy Hydro, as such the complaints register is taken to be the event management system. This enables all aspects of complaints, including investigations and corrective actions to be tracked and records maintained. All complaints shall, wherever possible, be directed to the Colongra Plant Manager. In the absence of the Colongra Plant Manager, the person receiving the complaint is to notify the Gas and Diesels Area Manager. The Colongra Plant Manager will notify the Corporate Affairs and/or the Environment Manager as required. Public complaints are treated as incidents and managed within the Snowy Hydro Event Management system. This will require investigation and tracking of actions as required by the nature of the complaint. When receiving a complaint the following details are to be recorded: • The date and time of the complaint. • The method by which the complaint was made.

	• Any personal / contact details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect. • The nature of the complaint. • The action taken by the licencee in relation to the complaint, including any follow-up contact with the complainant; and • If no action was taken by the licencee, the reasons why no action was taken will be documented. The record of a complaint must be kept for at least 4 years, and made available to the EPA and DPIE upon request.
Monitoring	Targeted environmental monitoring may be conducted in response to a complaint dependant on the nature of the complaint. This may include review of weather monitoring, and taking additional samples or measurements where required.
Reporting	If external reporting to regulating agencies is required, the Environment Manager is responsible for making those reports in accordance with licence, approval and/or permit conditions. Information regarding all complaints received (including the means by which the complaint was addressed and whether resolution was reached) is reported in the Annual Return to the EPA and Annual Environmental Management Report to the DPIE .

5.0 Community Information

The following section details the approach for provision of information to the community during the operational period of Colongra. Subject to confidentiality, all documents required under the Project Approval and Concept Approval must be made available to the public upon request.

5.1 Internet Site

In compliance with the Concept Approval Condition 5.2, a page on the Snowy Hydro external website is maintained to provide regular, up-to-date information regarding Colongra Power Station. The external website contains the following information:

- links to all Colongra approvals, permits and licences.
- the monitoring programs and environmental management plans required by the Concept Approval or Project Approval, which are contained in this OEMP.
- details of the results of compliance reviews and audits of Colongra.
- details of the contact points to which community complaints or inquiries may be directed, including a postal address, the complaints telephone number and email address for receiving complaints or inquiries electronically.
- Pollution Incident Response Management Plan administered by the NSW EPA.

5.2 Telephone Complaints Line

As per EPL Condition M5 and Project Approval Condition 4.2, the following contact details are provided for the purposes of receiving complaints and inquiries from members of the public in relation to activities at Colongra Power Station;

- a telephone number (1800 766 333).
- postal address (PO Box 332, Cooma, NSW 2630), and
- email address (info@snowyhydro.com.au).

The contact details, and the fact that complaints may be registered using these details, is advertised to the public on a sign near the entrance to the site, as well as on the Snowy Hydro external website. The telephone number is also provided on the Colongra Pollution Incident Response Management Plan (PIRMP) as required under the Protection of the Environment Operations Act.

6.0 Audits & Inspections

6.1 Weekly Site Based Inspections

Weekly walkthrough inspections are undertaken by site personnel. These inspections consist of visual inspection of all work areas and environmentally related activities in and around the site in order to check the condition of the site and any possible environmental issues. The inspections include:

- NOx water and fuel oil systems.
- Bund integrity.
- Roadways and drains.
- General housekeeping.
- Leaks and drips of oil or residues.
- Energised and alarming.
- Transformers, generator skid, auxiliary plant.
- Excessive vibrations from site activities.
- Noticeable odour.
- Malfunction of continuous analysers.
- Water or liquid discharge from any plant and/or off-site.
- Oil/water separator and dirty water capture points functionality and cleanliness; and
- Spillage/issues with solid waste (bins) and liquid waste storage areas.

6.2 Internal Audits

Internal audits will be undertaken in order to identify actual and potential non-conformances that may indicate, or lead to, a breach of legislative requirements. This will form part of the compliance tracking program.

An internal audit will be conducted annually at a minimum, in accordance with the Environmental Audit Schedule and may be tactical in nature focussing on a particular element and management plan, or an audit of the environmental management system components. Audits focussing on the environmental management system will use the standard ISO14001 as a guide to identify whether the Colongra environmental management practices are being maintained in accordance with ISO14001 requirements.

Findings and recommendations will be reported and tracked as actions in the Snowy Hydro Event Management system.

6.3 External Audits

6.3.1 Project Approval

As required by Project Approval Condition 3.8, twelve months after the commencement of operation of the Project, and every three years thereafter Snowy Hydro shall commission an independent, qualified person or team to undertake an Environmental Audit of the Project.

An Environmental Audit Report must be submitted to the DPIE within one month of the completion of the Audit and must:

- be carried out in accordance with ISO 19011:2002 - Guidelines for Quality and Environmental Management Systems Auditing.
- assess compliance with the requirements of the Project Approval and other licences or approvals that apply to Colongra Power Station.
- assess the environmental performance of the project against the predictions made and conclusions drawn in the EA (Parsons Brinckerhoff 2005) and Submissions Report (Parsons Brinckerhoff 2006); and
- review the effectiveness of environmental management, including any environmental impact mitigation works.

If the preparation and submission of an Environmental Audit Report and a Hazard Audit Report (required under Project Approval Condition 3.7) are required at the same time, the requirements of the Project Approval may be satisfied with a single report prepared by a single independent person or team approved by the Director-General.

6.3.2 Environmental Management System

Snowy Hydro also maintains its assets in accordance with ISO14001 and is annually audited to this standard, with the environmental aspect being recertified every three years. The external ISO14001 audit may potentially be used as the Environmental Audit Report if conducted in the same year as the Environment Audit Report is required. This would need to be approved by NSW DPIE prior to being undertaken.

7.0 Documentation

7.1 Document Control

As per Condition 1.8 of the Project Approval, all licences, permits and approvals must be obtained, renewed, maintained and complied with throughout the life of Colongra operations, and a copy of the Project Approval and all relevant environmental approvals made available on-site.

Documents classified as essential are filed and stored in AODocs (the Snowy Hydro document management system).

7.2 Records

Records must be kept for all monitoring, investigation, communication, agreements, incidents, reports and any other matter that has the potential to be referred to in the future.Documents and records relating to site operations should be retained in accordance with the Snowy Hydro procedure QP05-06 Information Asset Management.

In addition, the EPA and Project Approval specify documents and records in relation to environmental management, monitoring, and reporting must be retained for four years. These records include:

- Exhaust emissions testing results.
- Site inspections and walkdowns.
- Incident records.
- Waste transport certificates.
- Load calculation protocol calculations; and
- EPL13036 Annual Return.

These documents and records must be available onsite in hard copy or electronically.

8.0 OEMP Review

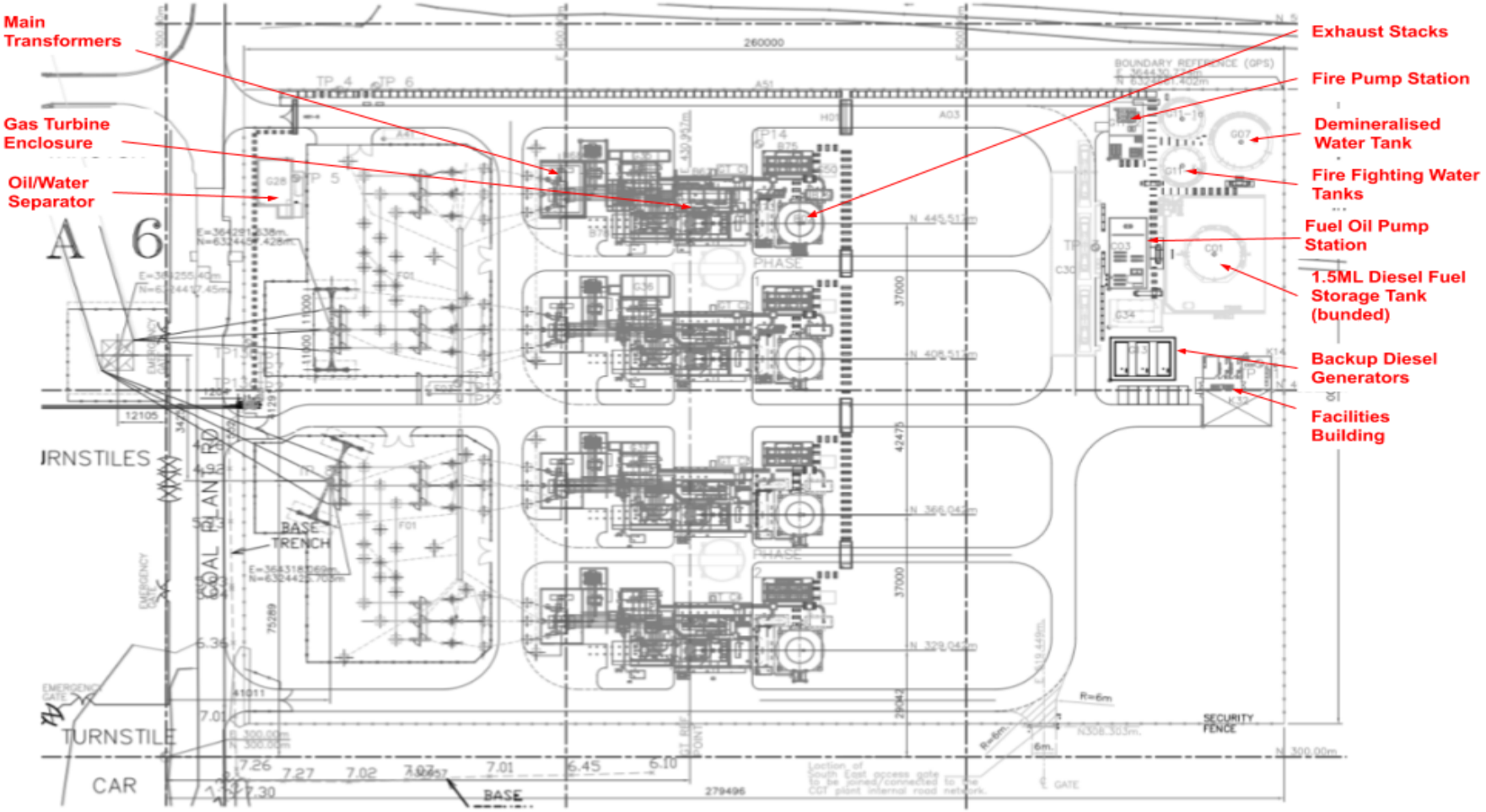
The OEMP is not a static document, and will be updated as required by changes in environmental management requirements identified throughout the operational life of the power station. Updates to the OEMP might be made in response to:

- scheduled review of the OEMP.
- regulatory changes.
- internal or external audit recommendations.
- issues identified in Annual Environmental Management Reports or Annual Returns.
- staff and organisational changes.
- incidents and investigation outcomes; and
- new initiatives in environmental management.

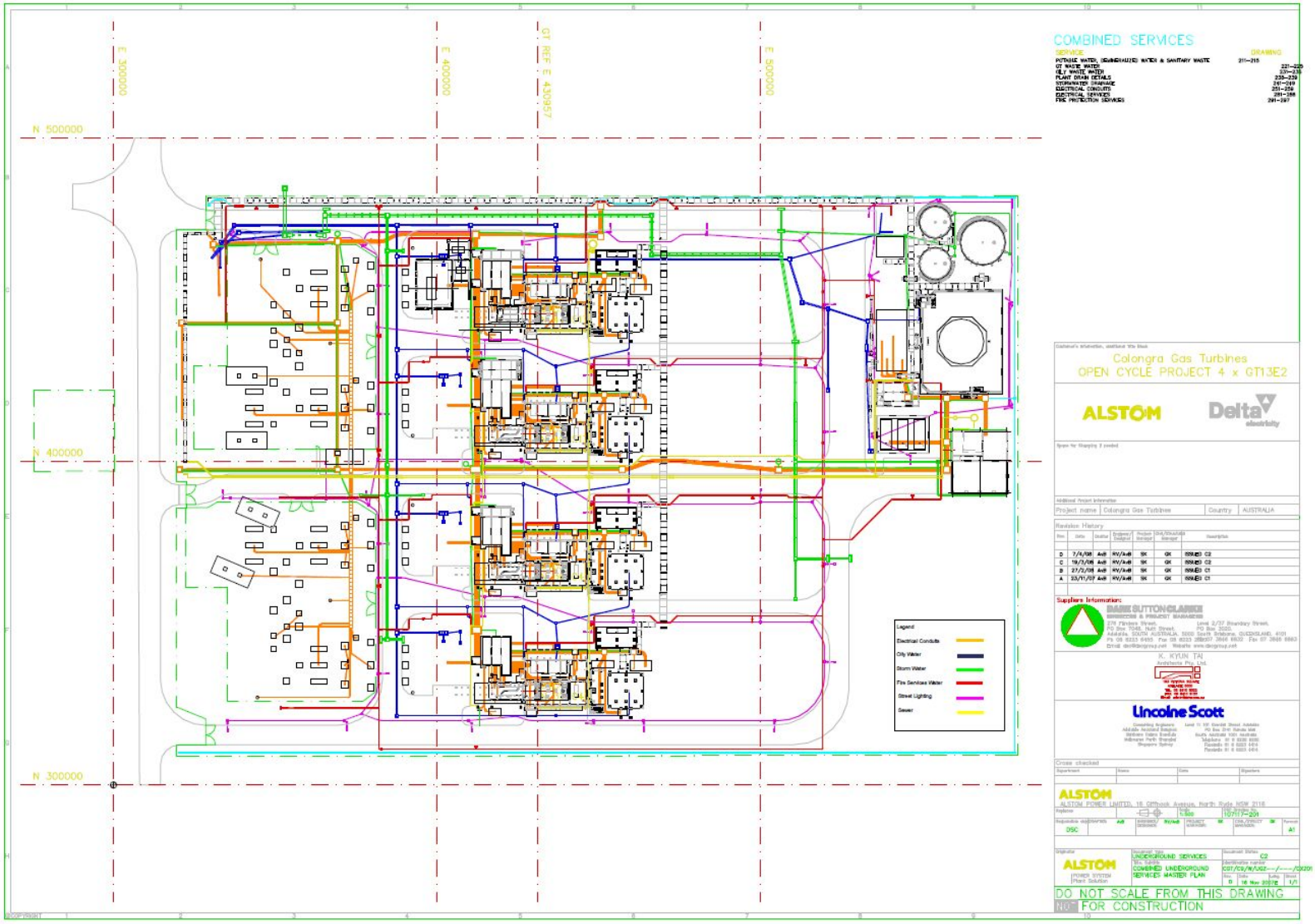
Following a significant update or change the OEMP would be re-submitted to the DPIE for review and approval.

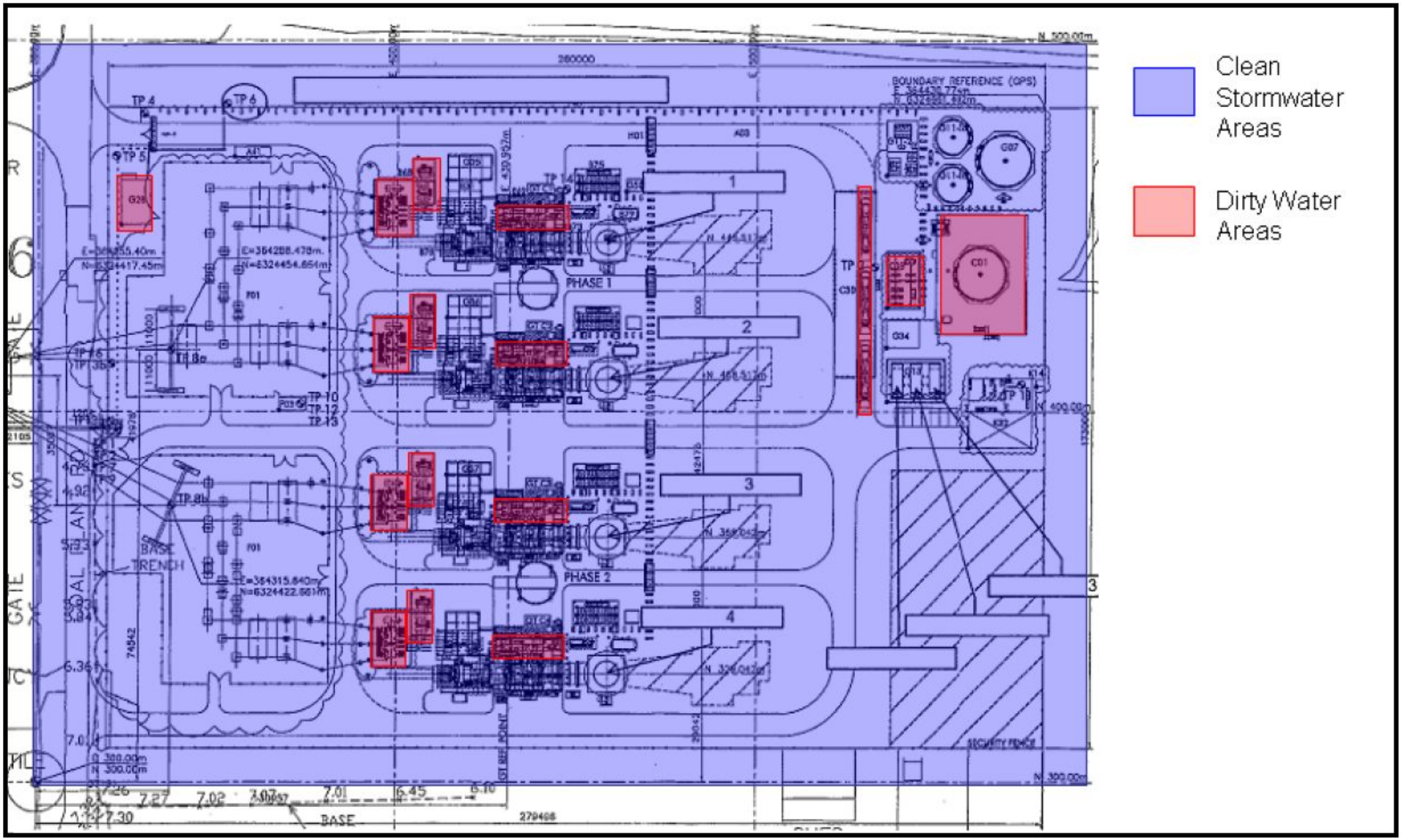
Appendix A – Stack emissions monitoring locations

Appendix B – Site plan and components relevant to environmental aspects



Appendix C – Site drainage systems




Clean Stormwater Areas
Dirty Water Areas
PHASE 1
PHASE 2
BASE
TRENCH
BOUNDARY REFERENCE (OPS)

Appendix D – Location overview including pipelines