# NORTHERN NETWORK ALLIANCE

# **MANAGEMENT PLAN**

## Waste Management Plan

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# CONTENTS

# 1 INTRODUCTION

This Waste Management Plan (WMP) is one component of the Construction Environmental Management Plan (CEMP) which provides a system and procedures to ensure that NN Alliance establishes and maintains best practice controls to manage potential environmental impacts during the construction of the NPI and associated infrastructure (hereafter referred to as the 'Project') and, wherever practicable, realise opportunities for enhanced environmental outcomes.

The NNA consists of the following partners:

LinkWater

Abigroup Contractors Pty Ltd

McConnell Dowell Constructors (Aust) Pty Ltd

Kellogg Brown & Root Pty Ltd

NN Alliance (referred to as the Alliance) is committed to providing the services it offers in a manner that conforms to the contractual requirements and to all relevant regulatory and legislative requirements. To achieve this, the Alliance will plan, implement and control an integrated management system that achieves the stated environmental outcomes.

The Alliance will ensure that controls are properly implemented and regularly monitored to assess their effectiveness. Changes to the controls will be instigated if they are not achieving their objectives.

## 1.1 Project Description

NPI Stage 2 forms part of the drought contingency pipeline to connect existing and future water infrastructure on the Sunshine Coast with the Brisbane network. The NPI will be constructed in two stages and will allow the transfer of up to 65 ML/d of potable water between the Sunshine Coast and Brisbane. Stage 1 of the NPI project—between Landers Shute water treatment plant (WTP) and Morayfield—is due for completion by 31 December 2008.

The completed NPI (Stage 1 and Stage 2) will supply a target volume of 65 ML/d of potable fresh water to existing facilities at Caboolture for distribution to localities in the greater Brisbane region. NPI Stage 2 will have the capacity to deliver up to 18 ML/d (under existing utilized entitlements for the Noosa Shire).

Subsequent interconnection of Stages of the NPI may be constructed to link with the proposed Traveston Crossing Dam and/or other bulk water sources proposed for the Sunshine Coast. These subsequent Stages are not considered in this report. However, the use of a large diameter pipe capable of transporting bulk water is a basis for the design of both Stages 1 and 2 of the NPI.

The key components of the NPI Stage 2 project are as follows:

- approximately 48 km of underground pipe between Noosa water treatment plant (WTP) and the termination point of NPI Stage 1 at Eudlo;
- a balance tank with a 5 ML capacity;
- three new pump stations; and

- a new water quality management facility (WQMF) and upgrades to an existing WQMF at Landsborough.

A number of additional above-ground facilities would be required for commissioning, operation and maintenance of the system. These include:

- Water quality maintenance structures
- Water branch mains
- Cleaning and communications stations

## 1.2 Purpose and Scope

Linkwater is committed to conserving and enhancing the biological environment where possible for the duration of the Project while achieving positive environmental, commercial and social outcomes.

The purpose of this WMP is to describe how the Alliance proposes to manage waste, and ensure resources (e.g. energy, spoil, and water) are conserved, during construction of the Project to ensure compliance with the *Environment Protection Act 1994* and the Environment Protection (Waste) Policy 2000.

To achieve this objective the Alliance will adhere to the specifications of the waste management hierarchy that prioritises waste solutions according to how successfully they conserve natural resources. The principles of 'reduce, reuse, recycle and dispose' have been adopted in establishing this WMP and in order of importance these priorities are:

**Reduce:** Waste avoidance by reducing the quantity of waste being generated. This is the simplest and most cost-effective way to minimise waste. It is the most preferred option in the Waste Management Hierarchy and is therefore ranked first.

**Reuse:** Reuse occurs when a product is used again for the same or similar use with no reprocessing. Reusing a product more than once in its original form reduces the waste generated and the energy consumed, which would have been required to recycle.

**Recycle:** Recycling involves the processing waste into a similar non-waste product consuming less energy than production from raw materials. Recycling spares the environment from further degradation, saves landfill space and saves resources.

**Dispose:** Removing waste from worksites, compounds and offices and dumping in a licensed landfill site, or other appropriately licensed facility.

This Plan has been prepared to address the requirements of the applicable legislation and aims to ensure that the commitments made by the Alliance with regard to waste management are met.

## 1.3 Objectives and Targets

Objectives:

- Ensure that all waste material generated on site is handled in a responsible manner, and in accordance with legislative requirements

- Educate all employees on waste minimisation hierarchy principles of reduce, reuse, recycle and dispose
- Prevent pollution associated with the management and disposal of waste material
- Increase employee and subcontractor awareness and their obligations regarding waste management
- Promote waste recycling throughout the project

Targets:

- No spillage or leaks of hazardous materials
- No damage to the environment as a result of poor waste management by the project
- All regulated wastes transported by an EPA approved licensed contractor
- 100% of native vegetation wastes are reused in rehabilitation and revegetation
- Waste management register created, implemented and maintained
- 100% of employees trained in regard to their responsibilities in managing waste

The above performance criteria have been developed for this MP to assist to deliver desirable outcomes. The performance criteria will be linked to Key Performance Indicators (KPIs) for the Project.

# 2 LEGISLATION AND REGULATORY REQUIREMENTS

## 2.1 Licences/Permits

There are no licences and approvals required for the management of waste associated with the project however there are relevant processes and procedures which must be implemented for management of Acid Sulphate Soils and Contaminated Land issues. These are outlined in their respective management plans - Acid Sulphate Soils Management Plan (NNA001-A-PLN-003) and Contaminated Land Management Plan (NNA001-A-PLN-006).

## 2.2 Guidelines/References

Key legislation relevant to waste management includes:

Environmental Protection (Waste Management) Policy 2000.

*Environmental Protection Act 1994.*

Environmental Protection Regulation 1998.

Environmental Protection (Waste Management) Regulation 2000.

Waste Management Strategy for Queensland.

*Road Transport Reform Act 1999.*

Australian Code for Transport of Dangerous Goods by Road and Rail.

## 2.3 Commitments

There are several commitments relevant to the management and reuse of waste imposed on the Project. Examples of these commitments are outlined in Table 1 below.

Table 1. Waste Management Requirements/Commitments
(refer NNA EIS 2008, Appendix E for final commitments)

| Document | Section | Requirement/Commitment |
|---|---|---|
| | **3.6** | **A waste management plan will be developed and implemented in consultation with the EPA.** |
| | **3.6** | **Storage, safeguarding, handling and transport of any waste generated by the project will be in accordance with relevant Australian Standards and statutory processes.** |

# 3 POTENTIAL PROJECT IMPACTS

The types of wastes that are likely be generated during construction of the NPI Stage 2 are listed in the following table.

Table 2. Potential Waste Sources

| Waste | Source |
|---|---|
| **Site Office and Work Sites** | |
| Glass/plastic/cans/paper/ cardboard potentially - recyclable | Construction compound/ office |
| Plastic wrapping/containers – collected and littered | Construction compound/ office and site |
| Scrap metal | Construction compound / steel yards / structural sites |
| Domestic waste | Food scrapes etc from office |
| Printer cartridges | Site office |
| Sanitary systems waste | Site office/worksite areas |
| **General Construction Works** | |
| Green waste, mulched timber | Vegetation from worksite clearing and grubbing |
| Weeds | Clearing works |
| Excavated surplus material (topsoil/spoil/rock) | Surface excavation, haul road establishment, construction. |
| Possible slurry cuttings containing some bentonite | Tunnelling |
| **Waste** | |
| Concrete wastes | Waste concrete from pours and washouts |
| Scrap metal | Construction activity wastes |
| Cables, parts | Construction and fit outs |
| Timber | Framework, off-cuts and packaging |
| Road maintenance wastes | Asphalt maintenance materials |
| Plastic wrapping, containers, packaging | Construction of activities |
| Plastic plant pots, fertiliser containers | Landscaping/revegetation works |
| Sediment fences, timber, metal, concrete | Decommissioning of site environmental controls |
| **Plant Maintenance / Chemical Management** | |
| Drums and containers | Maintenance (oil and lubricants etc) of plant and equipment, drums and containers from concrete works |
| Chemical wastes | Wastes from painting, maintenance, spill cleanup, herbicides, pesticides |
| Waste oil, grease, lubricants, oily rags, and filters | Maintenance of plant and equipment |
| **Operations Control** | |
| Solids (Sediment) | Sediment collected from sediment fences and other devices |

# 4 ENVIRONMENTAL MITIGATION MEASURES

## 4.1 Waste Management Strategy

To reduce the impact on resources during the construction of the NPI Stage 2, NNA Alliance will actively promote and ensure the responsible use of water and energy as well as water efficient work practices whilst achieving its other related environmental objectives (i.e. efficient utilisation of water to mitigate dust emissions, consideration for the use of recycled water). NNA Alliance will also actively promote and ensure the reduction of greenhouse gas emissions by adopting energy-efficient work practices.

Waste management and reuse procedures for the NPI project were developed through the Waste Hierarchy principles. This involves the adoption of environmentally sensitive work practices and implementation of environmental safeguards, which are identified in Management Mitigation Measures

Following is a detailed step by step process for reducing, reusing, recycling and disposing of waste. Specific measures for waste management and reuse on the Project are presented below.

## 4.2 Reuse and Recycling Action Plan

Waste separation and segregation will be promoted on site to facilitate reuse and recycling as a priority of the waste management program as follows:

Waste segregation on site – Waste materials, including spoil and demolition construction waste, will be separated on site into dedicated bins/areas, where practicable, for either reuse on site or collection by a waste contractor and transport to offsite facilities.

Waste separation offsite – Wastes to be deposited into one bin where space is not available for placement of multiple bins, and the waste is to be sorted offsite by a waste contractor.

Table 3 in Section 4.10 presents the proposed reuse, recycling and disposal strategy for segregated waste materials generated during construction of the Project.

## 4.3 Waste Handling and Storage

Where waste is required to be handled and stored on site prior to on site reuse or offsite recycling/disposal, the following measures apply:

Spoil, topsoil and mulch are to be stockpiled on site in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented as per the Air Quality, Construction Noise and Vibration MP NNA001-A-PLN-009 and the Soil and Water MP NNA001-A-PLN-011.

Liquid wastes are to be stored in appropriate containers in bunded areas (or equivalent purpose-built bunding device) until transported offsite. Bunded areas will have the capacity to hold 120% of the volume of liquid wastes.

Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the *Environmental Protection Act 1994*.

All other recyclable or non-recyclable wastes are to be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations on site and contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.

## 4.4 Waste Disposal

Waste (and spoil) disposal is to be in accordance with the *Environmental Protection Act 1994*. Wastes that are unable to be reused or recycled will be disposed of offsite to an Environmental Protection Agency (EPA) approved waste management facility. Details of waste types, volumes and destinations are to be recorded in the **Waste Register** by the Environmental Manager/Officer or delegated person (G-FRM-003).

## 4.5 Management of Contaminated Material

Management of contaminated materials or potentially contaminated materials will be in accordance with the Contaminated Lands MP (NNA001-A-PLN-006).

## 4.6 Management of Spoil and Fill

A key objective of the NN Alliance is to maximise the reuse of the excavated cut material to meet the fill demands of the project. By achieving this objective, in addition to conserving resources and flow on energy savings, NN Alliance will minimise spoil handling, transportation and disposal costs as well as minimising any amount of imported fill required. However, if excess spoil is produced it may be required to be sent offsite for reuse or disposal.
The overall management strategies for spoil and fill are presented in a number of additional management plans including:

Traffic Management MP – NNA001-A-PLN-012 - for truck haulage routes and traffic control.

Air Quality, Construction Noise and Vibration MP NNA001-A-PLN-009 - for dust mitigation in spoil and fill use, storage and transport.

Contaminated Land MP – NNA001-A-PLN-006 - includes an assessment of known areas of contamination as listed on the EMR which may be encountered along the pipeline route with specific management measures on how to manage and dispose of contaminated soils.

Acid Sulphate Soils MP – NNA001-A-PLN-003 – includes an assessment of areas where there is potential for acid sulphate soils (ASS) and details of the processes to be followed if ASS is encountered. Site specific management plans will be prepared where necessary.

## 4.7 Energy Conservation

During the construction of the NPI Stage 2, NNA will actively promote and ensure the reduction of greenhouse gas emissions by adopting energy-efficient work practices.

Construction of the NPI Stage 2 will involve the use of energy-expending equipment such as vehicles, earthmoving trucks, concrete trucks, excavators, compressors, generators and concrete pumps. By adopting an energy conservation strategy the following benefits will be incurred:

The reduction in energy demand and associated costs through the use and operation of energy efficient equipment.

Reduction in energy demand will result in reduction of greenhouse gas emissions through direct means (i.e. less fuel consumed, less emissions) and indirect means (i.e. less electricity consumed – less coal burnt- less emissions).

## 4.8 Water Conservation and Reuse

During the construction of the NPI Stage 2, NN Alliance will actively promote and ensure the responsible use of water and water efficient work practices whilst achieving its other related environmental objectives (i.e. efficient utilisation of water to mitigate dust emissions).

## 4.9 Training and Induction

All NN Alliance personnel and subcontractors will be inducted into the requirements of this Plan. Targeted training programs will be developed on an as required basis and in accordance with the CEMP.

## 4.10 Resource Requirements

The Superintendent and Project Engineers will oversee waste collection, waste management and coordinate waste disposal contracts. The Environmental Manager (or delegate) will maintain the waste register for the Project, and monitor the performance of meeting our waste minimisation and recycling targets.

Table 3 below describes the various waste management arrangements, including targets for reuse and recycling.

Table 3. Proposed Waste Reuse, Recycling and Disposal Arrangements

| Key Waste Stream | Segregation Areas / Containers (at established compounds) | Reuse / Recycling / Disposal Method | Target Reuse / Recycle | Waste Type |
|---|---|---|---|---|
| **Waste Separation on Site** | | | | |
| Spoil from excavations - suitable for reuse on site or offsite (based on engineering suitability and waste classification) | Stockpile areas | Beneficial reuse on site or offsite. Balance cut and fill earthworks, where possible, to optimise reuse on Project. | 100% | Varied depending on contamination investigations. |
| Paper/Cardboard/Plastic | 240 L bins | Offsite recycling | 100% | Inert |
| Glass/bottles/cans | 240 L bins | Offsite recycling | 100% | Inert |
| Cleared vegetation/green waste | Site mulch | Reuse on site/ send to green waste recycling centre | 100% | Solid |
| Concrete Products | 10 $m^3$ bins/pre-designated stockpile areas | Crushed and reused as backfill or as road base for site access/ used for site levelling or stabilisation/ sent off-site. | 100% | Inert |
| Timber (formwork) | 15 $m^3$ bins/pre-designated stockpile areas | Reuse on site where possible/ offsite recycling | 100% | Inert |
| Steel (reinforcement) | 10 $m^3$ bins/pre-designated stockpile areas | Offsite recycling | 100% | Inert |
| Asphalt | 10 $m^3$ bins/pre-designated stockpile areas | Reused for road base during construction or offsite recycling | 100% | Inert |
| Hydrocarbons (oils/grease) | Sealed drums/containers | Offsite recycling | 100% | Non-aqueous liquid waste |
| Oily Rags | 240 L bins | Offsite recycling | 100% | - |
| Paints / solvents | Sealed drums/containers | Offsite disposal at approved facility | Not recycled | Non-aqueous liquid waste |
| General Solid Waste | 3 $m^3$ bins with lids | Offsite disposal at approved facility | Not recycled | Solid |
| Chemical wastes | 15 $m^3$ bins lined with heavy duty plastic and covered | Offsite disposal at approved facility | 100% if recyclable | Hazardous |
| Printer Cartridges | Bin provided (capacity 20-25 standard cartridges) | Offsite recycling | 100% | Hazardous |
| Sanitary wastes | n/a | Sewer is available | n/a | n/a |

The provision of bins/drums will need to be reviewed prior to the commencement of construction in relation to the final location of site compounds to be established.

Table 4 outlines the mitigation measures, responsibilities and timing for identified actions to minimise impacts during construction. The roles and responsibilities if the NNA Alliance Project Team are outlined in the CEMP NNA001-A-PLN-017.

Table 4. Management Mitigation Measures

| Activity / Construction Item or Detail | Management Mitigation Measures | Responsibility | Timing |
|---|---|---|---|
| Pre - Construction | Determine "cut and fill" earthworks balance and, where possible, schedule works to maximise reuse of spoil on the Project and minimise double handling and need for stockpiling, thereby minimising the transport and dumping of excess material or the importation of material. | Construction Manager/ Project Engineers | Pre-Construction and ongoing |
| | Specific procedures for waste management (e.g. sorting area locations, recycling bin locations, waste oil tanks, material stockpile locations) are to be noted on the WMSs. | Environmental Manager | Pre-Construction |
| | All recycled materials will be considered for use in concrete and other construction materials in accordance with the Environment Protection (Waste) Policy 2000. | Project Engineers | Throughout construction and prior to concreting works. |
| | Waste management areas are to be adequately designed and managed to prevent sediment runoff and dust generation. | Superintendent | Pre-Construction |
| | Potentially hazardous materials (e.g. asbestos) and contaminated soils/sludges are to be identified prior to works and, where required, management procedures developed and documented in works method statements (WMSs) and the where necessary. | Environmental Manager | Prior to entering an area of known or potential contamination |
| Training and Awareness | Implement waste management awareness program as part of Site Induction and ongoing site Toolbox talks. All Project and site personnel are be trained in the requirements of the Waste Management Plan and the waste hierarchy. Site staff and subcontractors to be trained to minimise wastes, recognise which types of materials are recyclable and to be aware of their obligations to use recycling facilities provided on site. | Environmental Manager/ Environmental Officer/ Project Engineers | Pre-Construction and ongoing |
| | Provide clearly signed and categorised waste bins at worksites, site offices and compounds in convenient locations for segregation of recyclable materials. | Superintendent | Pre-Construction/ as required |
| | Provide site personnel with instruction into location of bins and any special storage or disposal arrangements (e.g. hazardous wastes, chemicals, waste oils/contaminated materials). | Project Engineers/ Environmental Manager/ Environmental Officer | Pre-Construction/ as required |
| | Spoil management areas are to be adequately designed and managed to prevent sediment runoff and dust generation. Controls should be implemented in accordance with the Soil and Water MP (NNA001-A-PLN-011). | Project Engineers | Pre-Construction |
| | In the event contaminated soil is discovered during excavations, work is to cease and actions undertaken as per the Contaminated Land MP (NNA001-A-PLN-006). | Environmental Manager/ Environmental Officer/ Site | At all times |

| Activity / Construction Item or Detail | Management Mitigation Measures | Responsibility | Timing |
|---|---|---|---|
| | | Superintendent/ Project Engineers | |
| | Measures to ensure no dirt tracked off-site and may include washdown facilities at major access points and daily road clean up with road sweepers. | Project Engineers/ Site Superintendent | At all times |
| | Spoil and fill loads will be securely covered and tailgates secured before leaving the site and in transit to site. | Superintendent | At all times |
| | Undertake spoil haulage in accordance with approved hours of site operation, on approved haulage routes, adhering to speed limits and at reuse/disposal locations. | Superintendent | At all times |
| | Monitor the approved haulage routes and ensure that local roads are restricted against use by Project heavy vehicle traffic, unless otherwise stipulated in the Traffic MP (NNA001-A-PLN-012). | Project Engineers/ Site Superintendent | At all times |
| | Where possible, reuse or recycle clean and/or treated spoil on the Project in embankments and landscaped areas, in preference to transporting offsite. | Project Engineers | As required |
| General Construction – Waste Reuse | Where practicable, trees cleared during construction to be chipped and mulched. Where space allows, mulched material to be stockpiled for reuse during landscaping. Vegetation and leaf material not reused on site to be transferred to landscape suppliers or Green waste Centre for composting. Weed material to be disposed to landfill as required. | Superintendent/ Environmental Manager/ Environmental Officer | As required |
| | Topsoil (free of weeds) to be stripped prior to undertaking earthworks, stockpiled and stored. Following completion of earthworks, topsoil to be used as part of landscaping and revegetation works. | Superintendent / Environmental Manager/ Environmental Officer | As required/Where possible |
| | All reasonable measures are to be employed to reuse and recycle excavated spoil material by utilising as fill. | Superintendent | Where possible |
| | Any empty fuel, lubricant and chemical containers are to be stored for collection by a licensed drum recycler for cleaning and reuse. | Superintendent | At all times |
| | Waste oil, grease and lubricants from maintenance of plant and equipment are to be placed in drums for collection by a licensed Waste Oil Recycler for treatment and reuse. | Superintendent | At all times |
| General Construction – Waste recycling | Ensure all potentially recyclable material is sorted, collected by a licensed waste transporter and taken to an appropriate recycling depot in the area. | Superintendent/ Environmental Manager | At all times |
| | Scrap metal resulting from construction activities to be segregated into ferrous and non-ferrous bins for collection by a scrap metal contractor for recycling. | Superintendent | As required |

| Activity / Construction Item or Detail | Management Mitigation Measures | Responsibility | Timing |
|---|---|---|---|
| | Where practicable, recycled concrete is to be used for hardstand areas, to provide stabilised vehicle access and prevent dirt being transported onto public roads. | Superintendent | Where possible |
| | Wood packaging, pallet, formwork and off-cuts, and cardboards and plastic wrapping resulting from project activities to be reused on site wherever possible, otherwise to be placed in separate bins and collected for recycling. | Superintendent | At all times |
| General Construction – Waste Disposal | All materials that cannot be reused or recycled are to be classified and disposed of at approved disposal facilities in accordance with the Environmental Protection Act 1994. | Superintendent/ Environmental Manager/ Environmental Officer | At all times |
| | Wastes from the Project that cannot be recycled or reused are to be disposed of via a licensed waste management contractor. The types of waste, destination and receipt by the disposal site are to be recorded on a waste manifest/receipt/docket system and in the Waste Register. | Project Engineers | At all times |
| | Provide appropriate covered receptacles in appropriate locations on site and ensure a contractor is commissioned to regularly remove/empty the bins. All bin removal/clearance will be undertaken within site boundaries. | Superintendent | Pre-Construction/ Ongoing |
| | Rubbish skips are to be provided at all construction sites and site compounds and are to be regularly removed/emptied. | Superintendent | Ongoing |
| | Non-hazardous waste (e.g. putrescible waste, non-recyclable paper/ plastics/ office waste etc) that cannot be recycled or reused is to be placed in skips for disposal to approved landfill. | Superintendent | At all times |
| | Any hazardous waste (e.g. asbestos) to be managed and handled by an appropriately licensed contractor and transported for disposal to an EPA approved site in accordance with the EPA requirements. | Superintendent | As required |
| | Any contaminated soil or contaminated water to be handled, treated, managed and disposed of in accordance with *Environmental Protection Act 1994* and in accordance with the Contaminated Land Management Plan. | Superintendent | As required |
| | Chemical wastes to be placed in sealed drums in designated, bunded areas for collection by a licensed waste contractor and offsite treatment or management in accordance with the manufacturers' instructions. | Superintendent | At all times |
| General Construction – Waste Transportation | All trucks transporting wastes offsite are to be appropriately licensed to carry the materials to appropriately licensed waste facilities. | Project Engineers | At all times |

| Activity / Construction Item or Detail | Management Mitigation Measures | Responsibility | Timing |
|---|---|---|---|
| | Waste truck loads are to be covered and tailgates secured prior to trucks leaving the worksite. | Superintendent | At all times |
| | Waste truck movements related to the worksite will only occur during working hours. | Project Engineers/ Superintendent | At all times |
| | For the transportation of hazardous waste, follow EPA requirements, obtain a consignment number, complete waste data forms and provide copies to the waste transporter regarding the consigned waste. Keep copies on site. | Environmental Manager | At all times |
| | Reuse of collected water (e.g. rain tanks) to be maximised on worksites for dust suppression and wash down. | Superintendent | At all times |
| | Concrete washouts will be undertaken over bins or other appropriate vessels. | Superintendent | At all times |
| | Implement energy management awareness program as part of Project Induction, Site Induction and, where applicable, ongoing site Toolbox talks. | Environmental Manager | Site induction |

# 5 CORRECTIVE AND PREVENTATIVE ACTIONS

## 5.1 Community liaison and complaint management

Complaints represent an opportunity to enhance project environmental performance. All project complaints, including those from members of the public, stakeholder groups and Government agencies, will be managed via the NNA 1800 243 998 phone number to be listed in the Inquiry and Complaints Management Procedure, contained in the Community and Stakeholder Management Plan.

Complaints from any source must be registered using the QESE complaint record section. Where the complaint is environment-related, the complaint will be investigated by the Environmental Manager or Environmental Officer in consultation with the Site Manager or delegate and action/s taken to enable satisfactory closure.

Feedback to relevant personnel will be managed by the community relations team. As required, complaint details (including type and preventative/corrective actions) will be advised to field staff via pre-start meetings, toolbox talks or the Health, Safety and Environment Committee as appropriate.

## 5.2 Environmental incident/emergency reporting

All project staff and subcontractor personnel shall report all environmental incidents to the Environment Manager, although initial response may go via the Site Manager/Spread Supervisor or Environmental Officer.

## 5.3 Incident/emergency preparedness and response

An Incident Response Plan will be prepared for the project. This plan documents suitable incident procedures to ensure effective response in the event of an emergency (including environmental emergencies such as fire, flood and large fuel spills).

The emergency procedures shall be tested on a six-monthly basis. Records are to be maintained of all site emergencies and results of emergency practice drills. The Emergency Response Controller for the project will be defined within the Incident Response Plan.

The key to effective prevention of incidents is monitoring, surveillance and training. During construction activities, inspections and preventative action to be performed by the Alliance will include:

daily inspections of active worksites and completion of routine environmental checklists

issue and quick close-out of NCR/EIN

maintenance of constant supervision on site

ongoing environmental training

environmental audits of worksites, subcontractors and compliance issues.

Environmental and safety information on hazardous substances (e.g. Material Safety Data Sheets [MSDS]) will be available at the main site office, including information on where and how such substances are to be stored. An up-to-date list of emergency response personnel and organisations will be maintained at the main office and compounds. A list of key environmental personnel will also be included.

Specific measures will also be implemented to minimise the risk of an incident occurring due to spillage, storage of hazardous materials or fire. Further information will be detailed in the Incident Response Plan.

## 5.4 Incident investigation

All incidents will be documented, investigations conducted and action plans (if required) developed to ensure no repetition of the event. Where current procedures are identified as being ineffective, the CEMP and any relevant WMS will be revised by the Environmental Manager and/or Health and Safety Manager.

An environmental investigation includes the following basic elements:

advising the environmental authority(ies) if any substantial pollution has occurred

identifying the cause and extent of and responsibility for the incident

identifying and implementing the necessary corrective action

identifying the personnel responsible for carrying out the corrective action

implementing or modifying controls necessary to avoid a repeat occurrence of the incident

recording any changes required to written procedures.

All personnel are required to report all incidents, as incident reporting is regarded as a valuable method of addressing shortcomings in procedures, training or equipment, and is an opportunity for improvement. It is also an offence not to report to the EPA any incident causing serious environmental harm.

## 5.5 Non-conformances

Non-conformances will be resolved according to the Quality Management Plan. The Environmental Manager or delegate will issue a Non-conformance Report (NCR) or an Environmental Improvement Notice (EIN) in response to inappropriate or non-conforming work methods, equipment selection, maintenance of controls or other identified concern.

In the event of a non-conformance:

the nature of the event will be investigated by the Environmental Manager

advice may be sought from a specialist

monitoring may be undertaken

the effectiveness or need for new/additional controls will be reviewed

an appropriate preventative and corrective action will be implemented

strategies will be identified to prevent reoccurrence

the NCR will be closed-out

environmental documentation/WMS will be reviewed and revised

will be documented on QESE.

# 6 INSPECTION AND MONITORING

## 6.1 Inspections

Weekly environmental inspections will be undertaken by the Environmental Officer/s and will include inspections of waste, management areas on site to ensure that all procedures for the reduction, reuse, recycling and disposal of waste are correctly implemented for the duration of the construction works. Records from the weekly inspections will be recorded within the Weekly Inspection Checklist form (refer G-FRM-001).

## 6.2 Monitoring and Reporting Program

A regular monitoring and reporting program for waste management will be conducted as follows:

Contractors performing works on site are to complete the Waste Register for all wastes generated and/or subject to disposal, as part of their subcontract. These registers are to be submitted to the Environmental Manager and Site Manager on a monthly basis.

Periodic inspections are to be conducted to monitor waste management and recycling practices including: status of waste bins (e.g. overflows, adequate containment), segregation of wastes in the worksite, general waste management practices).

Waste Removal Contractor – responsible for the appropriate removal and disposal of waste.

The following protocols for monitoring of waste management during the construction works have been established and documented in Table 5 below.

Table 5. Monitoring and Reporting Program

| Description | Frequency | Responsibility |
|---|---|---|
| Monitor waste management and recycling practices regularly at the worksite, including recording the date and time of each waste removal event and the waste removal contractor. | Daily | Environmental Officer/ Site Superintendent |
| Regular site inspections will be undertaken to assess general waste management and site litter /housekeeping is being effectively managed. | Daily/Weekly | Site Superintendent/ Environmental Officer |
| Maintenance of waste register: waste volumes will be registered including details of the waste type, volume, management procedure, ultimate reuse / recycle or disposal location and responsible site personnel (refer to G-FRM-003). | Weekly | Environmental Manager/ Environmental Officer |
| Inspections will be undertaken of waste facilities on site and storage compounds, including storage areas for reuse and recycling of waste. | Monthly | Environmental Officer |
| Monitoring of material reuse: where waste items are reused on site, e.g. topsoil, mulch, monitoring will be conducted and details recorded in the waste register described above. | Weekly | Environmental Manager/ Environmental Officer |
| Review/audit this Waste Management Plan in accordance with the CEMP. | 6 monthly | Environmental Manager |

## 6.3 Waste Register

A Waste Register is to be maintained by the Environment Manager to record the management of wastes from the Project. Significant materials generated during construction activities are expected to include:

- spoil
- possible contaminated materials (identified as contaminated by the Contamination Investigation Report)
- some waste oils/lubricants/greases (from maintenance activities, spills etc)
- drums/containers (sent to recyclers)
- metal/wood for reuse/recycling
- any hazardous materials
- waste generated by construction staff e.g. food scraps, food wrapping, plastic bottles etc.

Details of wastes removed from site are to be included in monthly reports to the ALT. The template for the Waste Management Register is included on form G-FRM-003.

# 7 DEFINITIONS AND ACRONYMS

| Acronyms | Glossary |
|---|---|
| CAR | Corrective Action Requests |
| EIN | Environment Improvement Notice |
| EIS | Environmental Impact Statement (Draft) as prepared by SRWP Co. April 2006 |
| EMP | Construction Environmental Management Plan |
| EMR | Environmental Management Register (administered by the EPA) |
| EPA | Queensland Government Environment Protection Agency |
| LinkWater | SRWPCo now trades as Linkwater, which is 100 per cent owned by the Queensland Government |
| NCR | Non-conformance Report |
| NNA | Northern Network Alliance |
| NPI | Northern Pipeline Interconnector |
| QESE | Quality Environment Safety Engineering Database |
| SAPs | Sensitive Area Plan's |
| SEIS | Supplementary Environmental Impact Statement |
| Sensitive receivers | Inhabitants or occupants of residential or institutional land uses (eg health care and educational facilities) |
| SRWP Co. | Southern Regional Water Pipeline Company |
| WMP | Waste Management Plan |
| WMS | Work Method Statement |

# 8 REFERENCE DOCUMENTS

Department of Environment (1996) Waste Management Strategy for Queensland.

*Environment Protection Act 1994.*

*Environment Protection Regulation 1998.*

*Environment Protection (Waste) Policy 2000*.

Federal Office of Road Safety, Department of Transport and Communications (1998) Australian Code for the Transport of Dangerous Goods by Road and Rail - Australian Dangerous Goods Code Sixth Edition.

NNA 2008, NNA Draft Environmental Impact Statement (EIS), Northern Network Alliance, Queensland

*Road Transport Reform Act 1999.*