



LUDMILLA WASTE WATER TREATMENT PLANT (WWTP) UPGRADE
GUIDELINES FOR A PUBLIC ENVIRONMENTAL REPORT

INTRODUCTION

1 Background

These guidelines are based on the requirements of clause 8 of the Environmental Assessment Administrative Procedures under the Northern Territory *Environmental Assessment Act 1982*.

The object of this Act is to ensure that matters affecting the environment to a significant extent are fully examined and taken into account in decisions by the Northern Territory Government. In preparing a Public Environmental Report (PER) to help achieve this objective, the proponent should bear in mind the following aims of the PER and public review process:

- to provide sufficient information from which interested individuals and groups may gain an understanding of the proposal, the need for the proposal, the alternatives, the environment which it would affect, the impacts that may occur and the measures to be taken to minimise and manage these impacts;
- to provide a forum for public consultation and informed comment on the proposal; and
- to provide a framework in which decision-makers may consider the environmental aspects of the proposal in parallel with economic, technical and other factors.

2 General content, format and style

The proponent should address the issues outlined in these guidelines, giving priority to the major issues associated with the proposal. Matters of lesser concern should be dealt with to the extent required to demonstrate that they have been considered. Additional data not outlined in the guidelines, but considered relevant to the proposal, should also be included within the PER. It is envisaged that the PER will be based on the results of available research, studies and data as appropriate, with further studies being conducted where necessary and practicable.

In these guidelines the terms 'descriptive' and 'discussion' should be taken to include both quantitative and qualitative expression and should be as practicable and meaningful as possible. Similarly, adverse and beneficial effects should be presented in quantitative and / or qualitative terms as appropriate.

The main text of the PER should be written in a clear, concise style that is easily understood by the general reader. Technical jargon should be avoided wherever possible. A detailed glossary and technical information necessary to support the main text should be included as appendices.

The documentation should include references and a list of individuals and organisations consulted. Where appropriate, the text should be supported by maps (showing contours and all named locations), figures, diagrams and tables.

CONTENTS OF THE PER

Include a detailed table of contents, showing all headings.

1 Executive Summary

The Executive Summary is to include a brief outline of each chapter within the PER using text and dot points. It is recommended that the Executive Summary is written as a stand-alone document, able to be reproduced on request by interested parties who may not wish to read the PER as a whole.

The summary should be a concise outline of the matters discussed in the main body of the document, to allow the reader to quickly obtain a clear understanding of the proposal, its environmental implications and management objectives. The summary should include:

- the title of the proposal;
- name and address of the proponent;
- a brief description of the background to and need for the proposal;
- a statement of the objectives of the proposal and its relationship to the Darwin Sewerage Strategy;
- a brief description of the proposal;
- a brief description of the existing environment;
- a brief summary of the principal environmental impacts;

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- a statement of the proposed environmental management principles and monitoring procedures;
- a brief explanation of the structure and scope of the PER and its legislative basis; and
- a description of the studies / surveys / consultations conducted in developing the proposal and preparing the PER (results of studies and detailed comments resulting from the consultation should be included as appendices).

2. Background and need for the Proposal

The document should discuss the background to the proposal and provide an explanation of the need for, and justification of the proposal, including:

- current situation / demand etc.;
- reason / justification for proposal;
- capacity for proposal to meet demand;
- consequences of not proceeding;
- discussion of alternatives including site, design (eg. extending the East Point outfall beyond the low water contour, or not using the East Point outfall) and technology (regard should be given to the biophysical, economic and social environment and the principles of ecologically sustainable development);
- current status of the proposal (scientific studies, environmental assessment); and
- relevant Territory government policies, legislation and licence requirements and relevant current and upcoming National and NT standards (this information would best be presented in table form).

3. Description of the Proposal

To assist in determining the environmental impacts associated with the proposal this section should describe the project in sufficient detail to allow an understanding of all stages of the proposal, including infrastructure design and engineering, construction, operation and management. Describe the existing operation in relation to the proposal.

Emphasis should be given to those components with the most potential for significant short and long term environmental impacts. The description of the proposal should include the work proposed at the Ludmilla plant, the outfalls at East Point and Larrakeyah and any work at the Leanyer and Hudson Creek sites associated with the storage and handling of sludge, grit and screenings.

3.1 Location and Design Requirements

- location and siting information;
- land tenure (maps and descriptions should clearly show the boundaries of the land held by the PAWA) and additional planning issues;
- design layout and standards, including drainage, roads, buildings, process descriptions, outfall alignments, discharge points etc:

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- design limitations imposed by site characteristics (including adjacent land use);
- operational and infrastructure requirements (roads, power, water supply, ablution, fencing/signage);
- expected lifetime of the proposal; and
- proposed staging of the upgrade

3.2 Construction Phase

- construction program (timing and duration);
- physical requirements for construction (types, quantities, sources and availability of construction materials such as water, aggregate, cement, fabrication products);
- sourcing and transport of construction materials including heavy vehicle movement (numbers and frequency) on public roads;
- construction standards, techniques, site management and supervision (including on-site storage and handling of materials);
- construction wastes and disposal methods;
- extent and methods of vegetation clearance, site preparatory works, earthmoving;
- soil conservation and rehabilitation measures, for example, of access tracks used during the construction phase, of cleared land and of areas affected by the construction of the rising main between Ludmilla and Larrakeyah;
- acid sulfate control measures;
- odour control measures during the relocation of existing sludge, grit and screenings from Ludmilla WWTP to Leanyer WWTP; and
- methods used to prevent and control biting insect populations.

3.3 Operational Phase

- raw materials (sources; quantities and storage) used in the operation of the upgraded plant;
- description of the processes and the products, such as treated wastewater and sludge produced at the plant (including quantities);
- details of sludge burning process at Ludmilla WWTP;
- transport, storage and handling of the sludge, grit, screenings and other materials;
- proposed reuse of treated wastewater and sludge including what guidelines will be met;
- timing of normal operations of facility;
- maintenance requirements and operations;
- odour control measures associated with the upgrade of Ludmilla WWTP and the sludge drying and storage facilities at Leanyer WWTP and Hudson Creek WWTP;
- measures used to control leachates from the sludge drying areas at Leanyer WWTP and Hudson Creek WWTP;
- predictions of overflow events (frequency and volume) to East Point outfall and to Ludmilla Creek during the wet season;

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- types and quantities of other wastes produced and methods for disposal or reuse; and
- ongoing measures proposed to minimise the potential for mosquito breeding on site and any off site locations that may be affected by the proposal.

4 Existing Environment

A description of the existing environment that may be affected by the proposal including off site locations, is required to serve as a baseline against which impacts and management of the proposal can be assessed. The extent of the discussion and description should be guided by the need to fully explain the environment in terms of expected and potential impacts and the identification and implementation of management plans. The description should include the Ludmilla area, the outfall areas at East Point and Larrakeyah and the affected areas at Leanyer and Hudson Creek including receiving waters.

4.1 Physical environment

- relevant climate and atmospheric conditions (precipitation, evaporation, wind, temperature, seasonal variability, flooding, cyclonic storms);
- geology, topography, geomorphology, relevant soil characteristics (erodibility, compaction, potential and acid sulphate soils etc);
- hydrology (including marine current regimes associated with the East Point and Larrakeyah outfalls, surface and groundwater systems, catchment and drainage regime);
- existing water and sediment quality of receiving waters affected by the proposed upgrade and declared beneficial uses of receiving waters;
- noise levels;
- air quality and odour;
- existing fire regime;
- past and present land use and land access; and
- current overflow events (frequency and volume) to Ludmilla Creek

4.2 Biological environment (terrestrial and aquatic, freshwater & marine)

- major habitats, communities and flora / fauna species, including their conservation status on a local and regional level and species of commercial importance;
- ecological relationships and their importance to flora/ fauna species, including habitat requirements, dispersal abilities, key components of ecosystems etc.;
- other sensitive environments and areas of significance (breeding sites, feeding sites, monsoon vine thickets, wetlands; marine reserves);
- extent, representation and protection elsewhere of species / communities / habitats affected by the proposal;
- obligations / listings under Territory, national and international registers, conventions or agreements;
- level of vegetation clearance / disturbance;

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- feral animals / vermin and weeds / plant pathogens;
- mosquitoes and biting insects; and
- existing biotic conditions in receiving waters affected by the proposed upgrade.

4.3 Aspects of the cultural and socio-economic environments

- areas nominated for listing or listed on the Register of the National Estate or the Interim list of the Register of the National Estate;
- the results of an inspection of the Register of Sacred Sites maintained by the Aboriginal Areas Protection Authority, as well as details of an application lodged with the Authority for an Authority Certificate within the meaning of Part 3, Division 1 of the NT *Aboriginal Sacred Sites Act*. Also, if practicable, include a copy of the Certificate issued by the Authority as a result of that application, containing conditions (if any) relating to the protection of sacred sites on, or in the vicinity, of the project area;
- archaeological and heritage places and objects under the *Northern Territory Heritage Conservation Act 1991*;
- historic sites;
- areas with special values (eg. landscape / visual environment/ recreational / commercial/ tourism/ fisheries); and
- sites of significance to the Aboriginal population and culture (including areas used for aboriginal subsistence food gathering).

5 **Environmental impacts**

The discussion should cover impacts on the biophysical, cultural and socio-economic environment at the local and regional levels. The text should cover impacts from both the construction and operational phases at all sites associated with the upgrade. Generally the discussion should use the same descriptors used to describe the existing environment.

Direct, indirect, short-and long-term, temporary and irreversible, adverse and beneficial effects should be discussed and quantified where possible. This should also include an assessment of the level of significance of the impact and a discussion on cumulative impacts. The reliability and validity of forecasts and predictions, confidence limits and margins of error should be indicated as appropriate. Interactions between impacts on the biophysical, cultural and socio-economic environments, both individually and collectively, should be covered.

This section should provide information on environmental management practices and safeguards proposed to prevent, minimise or ameliorate environmental impacts. The most economically effective, environmentally sound technology and procedures should be incorporated into the design of the proposal.

Any environmental monitoring associated with the construction phase (ie: monitoring of leachates from the potential acid producing soils; monitoring of dredging operations during the construction of the East Point outfall) and the operational phase (ie: monitoring the quality of water, sediment and biota of receiving waters) should be outlined in this section. Dispersal characteristics of the effluent plume from East Point outfall and Larrakeyah outfall on the water quality regime of Darwin Harbour (including variations due to tides, currents, seasons). Modelling of dispersion and predictions of assimilation zones is required.

Where relevant weed, vermin, feral animal and fire control measures should also be outlined.

A summary table listing potential impacts, environmental management practices and safeguards, monitoring and management methods with cross-referencing to the text of the report should be provided together with the outline of an Environmental Management Plan (EMP). Details of how the EMP will be implemented should be provided.

An EMP should provide:

- details of proposed measures to minimise adverse impacts and the effectiveness of these safeguards;
- ensure that safeguards are being effectively applied;
- enable remedial action for any impacts which are not originally predicted;
- measure the differences between predicted and actual impacts (monitoring); and provide for the periodic review of the management plan itself.

6 Decommissioning and rehabilitation

This section should address the objectives and goals associated with the decommissioning and rehabilitation of the proposal or any part of the proposal.

Discussion should include facilities to remain, progressive and final rehabilitation, site contamination surveys and clean-up, relevant legislation, responsibilities, timings, and potential uses for the decommissioned area.

7 Glossary

A glossary defining technical terms and abbreviations used in the text should be included to assist the general reader.

8 References

The reference list or bibliography should be accurate and concise.

9 Appendices

Information relevant to the PER but not suitable for inclusion in the main text should be included as appendices, for example detailed technical or statistical information, maps, baseline data, supplementary reports etc.

10 Administration

The Project Officer is Lynne Powell of the Environment Protection Division, Department of Lands, Planning and Environment and can be contacted on phone (08) 8924 4022 or fax (08) 8924 4053.

Arrangement for the public display, review and purchase of the PER, including locations and number of copies will be made at the time when the preliminary copy of the draft PER is reviewed.