

15.0 AUDITS/IMPROVEMENT PLANS/BEST PRACTICE GUIDELINES

A.W.N. (Air Water Noise) Consultants has extensive experience in environmental auditing of a broad range of industries and unit processes, and in the preparation of Environmental Improvement Plans and Best Practice Environmental Management Guidelines.

Examples of projects conducted in this field are outlined below:-

1. Amcor, Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by Amcor Fibre Packaging Australasia, the packaging subsidiary of Amcor Ltd., to conduct an Odour Audit of the Fairfield Mill paper manufacturing facility, Alphington, Victoria.

The project scope included the following:

- Review of historical odour emission test data;
- Review of plume dispersion modelling assessment;
- Identification and ranking of point and fugitive odour sources, based on auditor site inspections;
- Evaluation of odour control options.

2. Latrobe Valley Power Stations, Victoria

A.W.N. Consultants conducted an Environmental Audit of all Latrobe Valley power stations to assess the systems used for monitoring, recording and reporting particulate matter emissions to air. The assessment included:-

- Monitoring system
 - Performance, data capture levels, data manipulation, reporting, maintenance and calibration.
- Data management and validation
 - Q.A. procedures
- Reporting protocols
 - Compliance with Waste Discharge Licence conditions and corporate requirements
- Organisational issues
 - Responsibility/duty statements, documented procedures and channels of communication

3. BASF Aust., Victoria

A Waste Audit was conducted to compile an annual emissions inventory of solid, liquid and gaseous wastes. The plant produced a range of products, including acrylic emulsions and polystyrene.

Emissions to air were estimated using a number of techniques, including mass balance and vapour pressure calculations, in addition to the available process emission test data. Process emission data was compiled from previous A.W.N. Consultants NATA accredited laboratory monitoring programmes.

Fugitive emission sources were also evaluated, including valves, flanges and storage tank vents.

4. ACI Glass, New South Wales

The Development Consent for the installation of glass container furnace SP4 required ACI Glass to provide an annual report indicating the plant's compliance with the following:-

- Development Application Environmental Impact Statement
- Conditions of Development Consent
- License and trade waste agreements with relevant authorities

A.W.N. (Air Water Noise) Consultants was commissioned by ACI Glass to prepare the required environmental performance assessment report, and to conduct a solid and liquid Waste Audit.

The Waste Audit resulted in revised waste management practices at the site. A.W.N. defined waste categories and established waste management guidelines for each solid and liquid waste category.

5. Philip Morris, Victoria

A.W.N. was commissioned to conduct an Audit of the Philip Morris Environmental Management System. Previous projects have included the:

- conduct of Odour Audits;
- preparation of Odour Management Plans;
- review of the corporate Environmental Policy;
- review of Waste Management Plan relating to wastewater discharges from the site.

6. Environmental Protection Agency, Queensland

A.W.N. (Air Water Noise) Consultants was commissioned by the Queensland Environmental Protection Agency to prepare Best Practice Environmental Management Guidelines for the Brisbane municipal solid waste landfill, aimed at minimising odorous emissions and their impact on adjacent residential premises. The site is operated and managed by Pacific Waste Management Ltd. under contract to Brisbane City Council.

Specific project tasks were to:-

- Undertake site investigations to identify the source and causes of nuisance landfill odour;
- Produce a report containing recommended actions to reduce odour emanating from the landfill site, setting out measures, and advising on related technical and practical considerations.

A.W.N. was subsequently commissioned by the Department to review proposed odour monitoring and management protocols developed by Brisbane City Council, based on the A.W.N. Best Practice Environmental Management Guidelines.



LEFT
Landfill working face,
Queensland

RIGHT
Stormwater management,
Queensland

7. Environment Protection Authority, Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by the Environment Protection Authority of Victoria to prepare the document "Best Practice Environmental Management Guidelines for the Fired Clay Building Products Industry".

Issues addressed in the BPEM Guidelines include:-

- Site selection criteria;
- Land irrigation;
- Waste minimisation;
- Solid waste;
- Emissions to air;
- Prescribed and priority wastes;
- Fluoride effects on foliage and forage;
- Noise;
- Trade waste;
- Stormwater;
- Environmental management (Waste Management Plans, EMS, accredited licensee).

The document has subsequently been published in the EPAV Best Practice Environmental Management Series.

8. Adelaide Mushrooms, South Australia



LEFT
Mushroom picking, Adelaide

RIGHT
Wastewater lagoon, Adelaide

A.W.N. (Air Water Noise) Consultants was commissioned by Adelaide Mushrooms to conduct a statutory Environmental Audit to assess compliance with South Australian Environment Protection Authority regulatory requirements.

The audit objectives were to:-

- Evaluate management practices; including a review of records maintained to monitor compost production stages.
- Evaluate production processes for the making of compost; including mechanisms for reducing compost processing times, minimising odorous emissions, and improving compost windrow porosity.
- Evaluate technical systems and equipment; including improved performance of the exhaust system to the compost shed, appropriate use of water in the composting process and the use of biofiltration and odour masking agents for odour control.

9. Australian Jockey Club, New South Wales

A.W.N. (Air Water Noise) Consultants was commissioned by the AJC to conduct a Waste Audit and a statutory Environmental Compliance Audit of the Randwick Racecourse, Alison Road, Randwick, and subsequently to prepare a Waste Management Plan and Environmental Improvement Plan, in accordance with a directive from the New South Wales Environment Protection Authority.

The required Audit scope included, but was not limited to, the following:-

- The identification and assessment of activities conducted on the premises which generate pollutants;
- An assessment of the premises stormwater system and water discharges from the premises;
- The examination and assessment of the current liquid/solid waste generation/disposal/recycling operations carried out within the premises;
- The formulation of a Waste Management Plan and Environmental Improvement Plan to address the findings of the Audit;
- A proposed time frame for the implementation of Waste Management Plan items.

10. Riverland Oilseed Processors, Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by Riverland Oilseed Processors to conduct a Waste Audit and prepare a Waste Management Plan for their Numurkah oilseed pressing and solvent extraction plants.

The Waste Audit objectives were to:-

- Identify all gaseous, liquid and solid waste streams leaving the site;
- Quantify and characterise the identified waste streams;
- Establish the method of waste stream generation.

Consequently the Waste Management Plan involved the following:-

- Preparation of a corporate Waste Management Policy;
- Review of methods of waste collection and segregation;
- Review of methods of waste generation;
- Future trends analysis to review the effects of legislative change and public pressure;
- Review of options for reduction, re-use and recycle for each waste category;
- Establishment of goals for waste categories to incorporate in the management performance system.

11. Royal Agricultural Society, New South Wales

A.W.N. (Air Water Noise) Consultants was commissioned by the Royal Agricultural Society of NSW to prepare a Waste Management Plan for the Showgrounds located at Driver Avenue, Paddington, in accordance with a directive from the New South Wales Environment Protection Authority.

The environmental assessment included the following:-

- A review of the stormwater drainage system;
- Identification of contamination sources;
- A review of waste disposal/storage practices;
- Development of an education programme;
- Establishment of a Waste Management Plan and timetable for implementation of the proposed measures.

12. ACI Glass, Victoria

A major Environmental Compliance Audit was undertaken for ACI Glass, Spotswood, Victoria. The Audit consisted of the following phases:-

- A review of historical environmental monitoring data;
- Identification of all gaseous, liquid and solid waste streams leaving the site;
- Quantification and characterisation of all waste streams;
- Determination of methods of waste stream generation;
- Identification of any areas of the operation which created an environmental hazard or impact.

As a result of this study a further Audit was commissioned, to further characterise and quantify solid waste generated by the facility, and to establish a corporate Waste Management Policy. The successful completion of the project resulted in recommendations which, when implemented, will result in a solid waste reduction of 60%.

13. Boral Bricks, Victoria

Boral Bricks commissioned A.W.N. (Air Water Noise) Consultants to prepare a Waste Management Plan for quarry pit water at the Cathies Lane, Scoresby site.

Pit water had previously disposed of using land irrigation methods. Due to the potential for unlicensed discharges to Blind Creek to occur as a result of these activities, a thorough review was instigated.

The study objectives included the following:-

- Assess existing water disposal volumes and operations;
- Determine designated flood plain zones and frequencies;
- Examine measures to minimise pit water volumes for disposal, e.g. run-off diversion around pit areas, alternative on-site pit water uses etc;
- Determine and quantify the water balance for quarry pit water disposal;
- Determine land area requirements and suitability for land disposal (irrigation);
- Establish upgrade requirements for pit water management, and estimate associated costs;
- Detail a description and plan of the pit water management scheme;
- Determine and describe operational procedures;
- Establish emergency response procedures for system failure.

14. Collie Cooke Consolidated (SICPA), Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by Collie Cooke Consolidated (SICPA), Brooklyn, to conduct an Environmental Audit to assess the impact of residual emissions to air from their existing operations, and their proposed liquid ink operations, previously located at Tottenham.

The audit, conducted to comply with the requirements of Environment Protection Authority of Victoria Publication *"Recommended Buffer Distances for Industrial Residual Air Emissions"*, for site specific variation of a guideline distance, consisted of a review of the following:-

- Site layout with respect to adjacent sensitive land uses and prevailing meteorological conditions;
- Site boundary odour surveys;
- History of spillage/emissions incidents and procedures;
- Environment Protection Authority and local government authority complaint histories.

15. Boyne Smelters, Queensland

A.W.N. (Air Water Noise) Consultants was commissioned by Boyne Smelters, Boyne Island, Gladstone, Queensland, to conduct an Environmental Audit of the air emissions management systems at the primary aluminium smelter.

The project scope included the following:-

Monitoring systems:-

- Monitoring and analytical methods;
- Data manipulation and reporting;
- Monitoring equipment maintenance and calibration.

Data management and validation:-

- QA procedures.

Reporting protocols:-

- Compliance with licence conditions;
- Corporate requirements.

16. Brisbane City Council, Queensland

A.W.N. (Air Water Noise) Consultants was commissioned by Brisbane City Council, Department of Water Supply and Sewerage, Scientific Services Branch, to conduct an Odour Audit of the Willawong Liquid Waste Treatment Plant.

The aims of the audit were to:-

- Qualitatively identify the major odour sources;
- Identify short term odour control solutions, if available;
- Provide preliminary advice on appropriate forms of odour control and costs, for incorporation in the BCC Environmental Management Plan.

17. LaTrobe Shire, Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by LaTrobe Shire, to conduct an Environmental Compliance Audit of Plantation Hardwood Sawmills Pty. Ltd., Morwell.

The sawmill was designed to manufacture a range of timber products from plantation grown hardwood, principally mountain ash, supplied by the Victorian Plantation Corporation. Sawmill processing of hardwood creates a number of waste streams, principally trimmings, edging, sawdust, sander dust, bark and low grade chips.

Emissions to air resulted from the following point sources:-

- Green sawdust and bark silo;
- Kiln dried sawdust silo;
- Wood waste fired boilers.

The Audit report contained:-

- A review of potential atmospheric contaminant emissions from these sources;
- Atmospheric contaminant rate of emission estimates;
- A plume dispersion modelling environmental impact assessment to assess maximum atmospheric contaminant ground level concentrations.

18. South Pacific Tyres, Footscray

A.W.N. Consultants prepared an Environment Improvement Plan (EIP) for South Pacific Tyres, Cross Street, West Footscray consisting of the following components:-

- Environmental Policy;
- Description of operations and environmental impacts;
- Compliance environmental monitoring programme;
- Waste Management Plan;
- Environmental reporting programme;
- Emergency procedures;
- Environmental training and education programmes;
- EIP reviews.

19. Tobacco Co-operative of Victoria, Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by the Tobacco Co-operative of Victoria Ltd. to prepare a Waste Management Plan for their stemmery tobacco processing plant at Myrtleford, including guidelines for disposal and management of tobacco waste when used as a soil conditioner.

20. M.C. Herd, Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by M.C. Herd Pty. Ltd. to conduct an Odour Audit of their Corio premises. Odorous sources consisted of cattle and sheep stock yards, an abattoir, a rendering plant, a wastewater treatment plant and an area for land disposal of organic solids.

The Audit consisted of the following stages:-

- Site inspections to identify all relevant sources of odour;
- Odour testing of relevant sources;
- Mathematical modelling of odorous levels to determine their relative impacts and to assess compliance with SEPP (Air Quality Management) design ground level concentration criteria;
- Review of odour control options.

21. Symex Holdings, Port Melbourne

Symex Holdings was required by the Environment Protection Authority of Victoria to engage an Industrial Facilities Environmental Auditor to certify that:

- Dry fractionation plant works were completed;
- All potential odour emission sources serving the dry fractionation plant were connected to the odour collection and abatement system;
- All connections from the dry fractionation plant to the odour collection and abatement system were leak free;
- The dry fractionation plant works complied with EPA Publication, "*Bunding Guidelines*".

Symex Holdings subsequently commissioned A.W.N. (Air Water Noise) Consultants to conduct the required statutory Environmental Audit.

22. South Pacific Tyres, Somerton/Thomastown/Footscray

A.W.N. (Air Water Noise) Consultants conducted Waste Audits and prepared Waste Management Plans for the tyre manufacturing facilities operated by South Pacific Tyres (a partnership between Goodyear Tyres Pty. Ltd. and Pacific Dunlop Tyres Pty. Ltd.) at Somerton, Thomastown and Footscray.

Waste production data obtained during the conduct of the audits was used as a basis for establishing waste minimisation priorities for the various site Waste Management Plans.

23. Translink Operations, Southbank

Translink Operations is required to conduct six monthly external Audits of ventilation stack continuous emission monitoring and ambient air quality monitoring station operations associated with both the City Link Domain Tunnel and Burnley Tunnel ventilation stacks.

The Auditor is required to ensure that the operating procedures, and equipment used to acquire both ambient air quality and emission monitoring data, comply with NATA requirements and good laboratory practice.

A.W.N. (Air Water Noise) Consultants was commissioned by Translink Operations to conduct the required statutory Environmental Audits.

24. Terminals, West Melbourne

A.W.N. (Air Water Noise) Consultants was commissioned by Terminals to prepare a Waste Management Plan for the Coode Island bulk liquid storage facility.

The first stage of the project involved the conduct of a Waste Audit.

The Audit objectives were to:

- Identify all gaseous, liquid and solid waste streams leaving the site;
- Quantify and characterise the waste streams;
- Establish the method of waste stream generation.

Based on the results of the Waste Audit, priorities for waste minimisation were established based on a technical and economic analysis. This formed the basis of the Waste Management Plan which consisted of:

- A draft Terminals Waste Management Policy;
- A process review;
- A review of methods of waste collection and segregation;
- A review of methods of waste generation;
- A review of options for reduction, re-use and recycle of each waste category, in conjunction with the preliminary design for the Melbourne Terminal Redevelopment.

25. Pacific Dunlop Engineered Products, Bayswater

A.W.N. Consultants was commissioned by Pacific Dunlop Engineered Products, Bayswater to conduct an Environmental Audit to identify sources of stormwater contamination, and subsequently to prepare a Wastewater Management Plan.

26. Tyco Water, Somerton

A.W.N. (Air Water Noise) Consultants was commissioned by Tyco Water to conduct an Environmental Compliance Audit of their steel water pipe manufacturing facilities located at Somerton. The scope of the Audit was to identify the major environmental issues associated with the manufacturing operations.

27. Walter Construction Group, Melbourne

A.W.N. was commissioned by the Walter Construction Group to conduct Environmental Compliance Audits of various building construction projects in Melbourne, and to revise Environmental Management System (EMS) documentation in preparation for subsequent EMS certification.

Building projects included:

- Centurion Apartments, South Melbourne;
- Gallery Towers, Southbank;
- Boulevard 610 Apartments, Melbourne;
- Marquise Apartments, Melbourne.

28. Department of Environment, Western Australia

Department of Environment, Western Australia commissioned A.W.N. (Air Water Noise) Consultants to Audit documentation pertaining to the Midland Redevelopment Authority Dust and Air Quality Management Plan, for implementation during the proposed remediation of the Midland Railway Workshops site.

29. Department of Environment, Western Australia

A.W.N. (Air Water Noise) Consultants was appointed by the Western Australian Department of Industry and Technology to conduct an independent Environmental Audit of the Alcoa World Alumina Australia Wagerup Refinery, on behalf of the Department of Environment.

The Audit consisted of an independent technical review of:

- The methods and resulting data used to establish baseline odour emission levels, representative of production equivalent to 2.2 million tonnes per annum (mtpa), and the current odour emission levels (at 2.35 mtpa);
- Six monthly and annual monitoring reports submitted by Alcoa;
- The ambient air quality monitoring programme conducted by Alcoa;
- The Liquor Burning Facility metals emission monitoring programme;
- The emissions inventory; including the monitoring plan, parameters to be measured, sampling methods, analytical methods, reporting and interpretation.

The Auditor also met with community representatives periodically at key milestones during the Audit process.

30. Macquarie Park Cemetery Trust, New South Wales

A.W.N. Consultants was commissioned by the Macquarie Park Cemetery Trust to prepare an Environment Improvement Plan covering activities at a proposed Crematorium. The Plan outlines the major environmental issues which needed to be addressed in the operation of the Crematorium, and management protocols required to address each item.

31. Terminals, Victoria

The Environment Protection Authority of Victoria required Terminals to prepare a Stormwater Management Plan for the Coode Island bulk liquid storage facility. A.W.N. Consultants was subsequently commissioned to prepare the required Plan.

The purpose of the Stormwater Management Plan was to identify opportunities for reducing the risk of contaminating stormwater, and consequently reducing or mitigating environmental impacts caused by the discharge of contaminated stormwater to the Maribyrnong River.

The associated statutory Environmental Audit:

- Identified all stormwater streams entering and leaving the site;
- Quantified annual discharges of contaminated stormwater and sewage;
- Established the method of stormwater generation and contamination;
- Reviewed existing stormwater monitoring and management practices;
- Investigated the viability of utilising the proposed Coode Island sewer for contaminated stormwater and sewage discharges.

Based on the Audit outcomes, priorities for improving stormwater quality were established based on a technical and economic analysis.

This formed the basis of the Stormwater Management Plan, which consisted of:

- A draft Terminals Stormwater Management Policy;
- A process review;

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- A review of methods of stormwater collection and segregation;
 - A review of methods of stormwater generation;
 - A review of options for improving stormwater quality.

32. Terminals, Victoria

A.W.N. Consultants was commissioned by Terminals Pty. Ltd. to conduct a statutory Environmental Audit of chemical storage bunding, in order to satisfy a regulatory requirement of the Environment Protection Authority of Victoria.

The aim of the Audit was to evaluate the adequacy of existing bunds present in Plant B "West" and Plant C "West" at the Terminals site, 54-62 & 70-78 Mackenzie Road, West Melbourne, Victoria. Sub-bunds used for containment of minor spills in the immediate vicinity of the tanks, were also examined.

Bund adequacy, for the purposes of the audit, was defined as the ability of the bund to contain sufficient quantities of the contents of tanks/drums/tanker vehicles within the bunded area. Adequacy was determined through comparison with the requirements of EPAV Publication "*Bunding Guidelines*".

33. Visy Recycling, Victoria

Visy Recycling, Laverton North, produces glass cullet for reuse in various glass manufacturing processes. Customers include ACI Glass Packaging Australia (container glass), Pilkington (Australia) Ltd. (window glass) and Insulation Solutions (glass fibre insulation).

A Pollution Abatement Notice issued by the EPAV required Visy Recycling to commission an Industrial Facilities Environmental Auditor to conduct a statutory Environmental Audit of the Laverton North site. AWN Consultants was subsequently commissioned by Visy Recycling to conduct the required Audit.

In summary, the Audit:

- Ensured that all actions outlined in the Visy Recycling Environmental Improvement Action Plan, and Dust Reduction Action Plan, had been implemented;
- Assessed the effectiveness of the implemented actions in preventing the discharge of glass particles, litter and contaminated stormwater beyond the site boundary, and identified potential risks of non-compliance;

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- Recommended measures to further reduce the discharge of glass particles, litter and contaminated stormwater emitted from the site.

34. Akzo Nobel, Victoria

Accredited Licensee applicants must be able to demonstrate both a high level of environmental performance, and a capacity to continuously improve performance.

Prerequisites for an Accredited Licensee are an EMS, EIP and an Environmental Audit Programme, which involves an Industrial Facilities Environmental Auditor.

Akzo Nobel produces resin, industrial coatings (paint) and powder coatings at their Sunshine North manufacturing facility.

A.W.N. (Air Water Noise) Consultants was commissioned by Akzo Nobel to conduct an Environmental Compliance Audit, as supporting documentation for their proposed Accredited Licensee application.

35. Yallourn Energy, Victoria

A.W.N. (Air Water Noise) Consultants was commissioned by Yallourn Energy, owner and operator of the Yallourn W Power Station, Latrobe Valley, to conduct an independent Data Verification Audit of the summary statistics describing electricity generation, environmental performance, safety performance, employee training and community development.