



final report

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Abstract

MINTRAC facilitated five Environment Managers' Network meetings during 2011-2012 attended by 70 representatives from 21 different meat processing companies, two different regulatory bodies, four industry associations, research agencies, registered training organisations and other companies servicing the industry.

The agendas for these meetings covered a range of industry research and development outcomes, new regulations and their implications for the processing sector including the implications of the carbon tax. Each meeting was associated with a site visit to an environmental innovation at a meat processing establishment.

In addition this year MINTRAC produced a CD which explore environment management initiatives at four meat processors around the country. The initiatives involved include:

- covered anaerobic lagoons and methane capture
- an innovative circular DAF
- an above ground anaerobic tank
- reducing water usage in lairage by using wood chips in pens.

The recommendations for the Environment Managers' network provided in Section 7 of this report focus on

- improving the adoption of industry research and development
- improving the skills and knowledge of managers
- identifying changes in regulatory requirements.

Executive summary

The objectives of the project are to:

- serve as an extension arm for AMPCs environment project outcomes
- serve as an extension arm for AMPCs environment committee
- enhance the ability of the industry to manage its environmental responsibilities
- increase the dialogue between industry and the regulators
- facilitate professional development activities within the context of the network meetings to enable environment managers to expand their skills and knowledge bases
- ensure the timely and structured dissemination of R&D outcomes throughout the industry.

The MINTRAC Environment Networks provide a means of ensuring that R&D outcomes, innovation and new regulatory requirements can be disseminated effectively in the meat industry. Furthermore the networks provided a forum for practitioners to discuss with their peers and regulatory representatives the practical implications of changing environmental management requirements and the ways to effectively meet these demands.

Funding for this project in 2011-2012 funded five state-based network meetings and professional development exercises.

Attendees at network meetings included company environment managers, equipment providers and consultants to the industry, regulators from state EPA bodies as well as meat industry trainers, peak bodies, and research agencies such as AMPC and MLA.

The five network meetings held during 2011-2012 discussed a range of industry R&D outcomes, new regulations and their implications for the processing sector, for example:

- the carbon tax and its impact on meat processing plants
- NGRS reporting requirements
- refrigeration efficiencies
- achieving water efficiencies through changes to cleaning technologies and arrangements
- maximising steam generation efficiency.

The network hosted presentations from boiler and refrigeration experts as well as specialists in cogeneration.

Under the auspices of this project four selected environment innovation projects have been filmed and an information CD developed covering issues addressed by the innovations, the technology employed and the successful outcomes employed. The projects covered by the CD were:

- new DAF innovation
- the use of wood chips to reduce water use in lairage
- the capture of methane from an anaerobic pond at a meat processing facility
- an alternative above ground approach to storing and treating waste water in an environmentally sensitive area.

The information CDs containing film footage, interviews, technical diagrams and flow charts will be distributed to all the environment network members.

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1 Background

The Environment network consists of state based network of environment managers from industry, researchers, regulators and trainers. It gives environment managers, researchers, technology suppliers and regulators a very useful forum to explain, explore and discuss new issues and innovations. In a time when a wide range of new regulatory requirements associated with climate change is emerging, the network provides a means of disseminating the information and providing relevant professional development to meet the regulatory requirements. In addition by fostering a community of practice network members are provided with support for the adoption of new technologies and practices.

The network also provides a means of showcasing initiatives being undertaken by meat processing plants and related industries in areas such as methane capture, cogeneration, water saving, waste water management, refrigeration efficiencies and composting.

The network is aligned with the National Environmental Committee and therefore seeks to consistently address the issues and priorities of that Committee.

MINTRAC management of this program 2011-2012 included:

- the organisation of five network meetings and site visits in five different States
- the filming of four current on-plant projects
- development of a DVD of the four projects showcased
- regular dissemination of MLA reports and products to industry personnel
- the organisation and provision of professional development workshops as part of the network meetings
- organisation of an inaugural environment conference for July 2012
- ensuring that new requirements and practices are incorporated into the nationally accredited qualifications

1.1 Network meetings

The two main functions of the network are to:

- organise five network meetings and professional development workshops facilitated by a technical consultant and delivered in selected regional centres

- develop communication channels between the various parties involved.

During 2009-2010 a successful strategy to link Environment network meetings with site visits was developed and this has been continued in 2011-2012.

This year the site visits have continued to prove successful with visits made to the following sites:

- T&R at Murray Bridge in SA
- CRF in Colac in Victoria
- Churchill Abattoir at Ipswich Qld
- DBC at Bunbury in WA
- Cargill Beef at Wagga NSW

The professional development exercises at the network meetings have included presentations on:

- NGERS
- heat exchangers
- cogeneration
- maximising steam generation efficiency at your plant
- achieving maximum energy savings by increasing the efficiency of your refrigeration costs
- AMPC water efficiency projects and the regulatory approval process

During 2011-2012 MINTRAC also further developed the 'case study' approach to professional development by filming four new plant-based projects and then featuring them on a CD to be distributed to the industry.

The table below sets out the network meetings for the Environment Networks for 2011/2012.

State	Location	2011/12
Victoria	Colac	23 September 2011
Western Australia	Bunbury	14 March 2012
Queensland	Brisbane	7 March 2012
South Australia	Adelaide	2 May 2012
New South Wales	Wagga Wagga	16 November 2011

1.2 Professional development program

The professional development exercises at the network meetings have included presentations on:

- NGERS
- maximising steam generation efficiency at your plant
- achieving maximum energy savings by increasing the efficiency of your refrigeration costs
- AMPC water efficiency projects and the regulatory approval process
- DAF innovation.

1.3 The Environment Initiatives DVD

Four selected environment innovation projects have been filmed and an information CD developed covering issues addressed by the innovation, the technology employed and the successful outcomes employed. The projects covered by the CD were:

- covered anaerobic lagoons and methane capture
- an innovative circular DAF
- an above ground anaerobic tank
- reducing water usage in lairage by using wood chips in pens.

The information CDs containing film footage, interviews, technical diagrams and flow charts will be distributed to all the environment network members.

2 Project objectives

The objectives of the project were to:

- enhance the ability of the industry to manage its environmental responsibilities
- increase the dialogue between industry and the regulators
- facilitate professional development activities to enable environment managers to expand their skills and knowledge bases
- ensure the timely and structured dissemination of R&D outcomes throughout the industry.

3 Methodology

3.1 Environment Managers' Network meetings

Five Environment Managers' Network meetings were held during 2011-2012.

Agendas are set by consultation with meat processing companies, research organisations, AMIC, AMPC and State regulators who were directly invited to contribute agenda items for discussion. Additional speakers were invited as required.

Handouts from AMPC, AMIC, MLA and CSIRO etc are collated into the meeting folders to ensure that any recent publications are appropriately disseminated.

3.2 Professional development program

Professional development requirements are established through consultation with the processors and researchers in this area.

The workshops are then part of the network meeting program and are advertised by:

- direct mail to the standard MINTRAC mail lists
- advertising on the MINTRAC website
- advertising through the *Mintracker* newsletter.

Frequently, follow-up telephone calls to plants are made in an effort to encourage sufficient numbers to enable network meetings to be run.

3.3 The Environment Initiative Presentation CD

Four environmental management initiatives were documented and filmed in a CD for distribution to the meat processing industry. The CD developed covered issues addressed by the innovation, the technology employed and the successful outcomes employed. The projects covered by the CD were:

- new DAF innovation
- the use of wood chips to reduce water use in lairage
- the capture of methane from an anaerobic pond at a meat processing facility
- an alternative above ground approach to storing and treating waste water in an environmentally sensitive area.

The information CDs containing film footage, interviews, technical diagrams and flow charts will be distributed to all the environment network members.

4 Results and discussion

4.1 Environment managers' network meetings

Five environment managers' network meetings were held during 2011-2012, as shown in the table below.

State	Location	2011/12
Victoria	Colac	23 September 2011
Western Australia	Bunbury	14 March 2012
Queensland	Brisbane	7 March 2012
South Australia	Adelaide	2 May 2012

New South Wales	Wagga Wagga	16 November 2011
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4.1.1 Key issues raised

Key issues raised through the network meetings were as follows.

- electricity demand management
- refrigeration efficiency
- steam generation efficiency
- NGRS reporting
- waste water management
- methane capture and utilisation
- cogeneration
- reducing water usage
- Commonwealth funding opportunities (Energy efficiency projects).

4.1.2 Industry R&D dissemination

The six network meetings held during 2011-2012 discussed a range of industry environmental R&D outcomes including those emanating from:

- AMPC water usage reduction R&D project
- AMPC pond cover R&D project
- Energy Efficiency Manual (2009)
- Environmental Best Practice (2007)
- Eco-Efficiency Manual (2002)

4.1.3 Network attendance statistics

Over the 2011-2012 year 70 individual attendances were recorded at Environment Managers' Network meetings. The breakdown of network participation is provided below:

	Companies	Individuals
Meat Processing Companies	21	27
Peak Organisations	3	26
RTOs	1	1
Service Providers	10	24
Regulators	3	3
Totals	36	70

4.2 Professional development program

Professional development workshops were conducted for environment managers' network meetings in the following topics:

- maximising steam generation efficiency at your plant
- achieving maximum energy savings by increasing the efficiency of your refrigeration costs
- water efficiency projects and the regulatory approval process.

4.3 The Environment Initiatives DVD

Four environmental management initiatives were documented and filmed for an information CD on environmental initiatives undertaken around Australia. The CD was prepped for distribution to the meat processing industry, RTOs, industry organisations and researchers. The CD developed addressed the

nature of the innovation, the technology employed and the outcomes for the processor. The projects covered by the CD were:

- new DAF innovation
- the use of wood chips to reduce water use in lairage
- the capture of methane from an anaerobic pond at a meat processing facility
- an alternative above ground approach to storing and treating waste water in an environmentally sensitive area.

The information CDs containing film footage, interviews, technical diagrams and flow charts will be distributed to all the environment network members.

5 Success in achieving objectives

5.1 Serve as an extension arm for AMPCs environment project outcomes

AMPC R&D projects are presented at networks either through the AMPC Fact Sheets agenda item or as a presentation where the researchers present on the R&D project. This year presentations were made on waste water pond management, steam cleaning of viscera tables, alternative chiller cleaning arrangements and recycling water in tripe processing.

5.2 Serve as an extension arm for AMPCs environment committee

AMPC has a permanent agenda item at the meetings to advance the priorities established by the environment committee. In addition the AMPC is able to, by consultation, direct MINTRAC to arrange specific professional development workshops for the network program.

5.3 Enhance the ability of the industry to manage its environmental responsibilities

The network enhanced the ability of industry to manage its environmental responsibilities by providing:

- professional development workshops that look at proven technology/methodology for controlling energy/water inputs or waste outputs that included boiler efficiency, methane capture, water usage reduction and cogeneration plants
- site visits on which network members get an opportunity to view environmental initiatives at meat processing plants to physically see the technology such as integrated waste water ponds /methane capture/large scale irrigation project at T&R in SA and have in-depth conversations with those who have designed and operate the plant
- an opportunity to network with peers and share experiences of dealing with environmental issues such as discussing with the EPA what constitutes good practice.
- a forum for discussing environmental issues with regulators and to expose regulators to the technology and practices utilised by the industry
- a way of disseminating research outcomes which enable industry personnel to interact with researchers and for industry personnel to get the most out of R&D.(for example Richard Ford has presented on three AMPC funded research projects at each of the network meetings).

5.4 Increase the dialogue between industry and the regulators

The networks allow regulators to interact with industry personnel outside the normal audit/complaint investigation setting. It allows the regulators a chance to get an insight into the practicalities of industry as well as what constitutes good practice for our industry.

At three of the network meetings State Government officials discussed new regulation or policy changes that would impact on meat processors. This gave the processor representatives an opportunity to explore what was actually involved in the changes and ask the myriad of “what if” questions that accompany any change.

The regulators also have an opportunity to discuss issues in an informal setting and to explore possible solutions outside a formal interaction with processors. Additionally the network meetings allow regulators to brief industry on the implications of changes in policies, regulations and charges.

5.5 Facilitate professional development activities to enable environment managers to expand their skills and knowledge base

The professional development sessions at network meetings gave industry access to experts in the following technical areas:

- maximising steam generation efficiency at your plant
- achieving maximum energy savings by increasing the efficiency of your refrigeration costs
- water efficiency projects and the regulatory approval process.

In many cases environment managers do not have formal training in environmental management so the PD sessions give them an opportunity to expand their knowledge and understanding of the options available to plants when managing environmental issues.

5.6 Ensure the timely and structured dissemination of R&D outcomes throughout the industry training programs

The networks have assisted in transmitting R&D outcomes directly to environment managers through broadcasting papers to environment managers on MINTRAC's data base and via the network meetings. It also has enabled the industry's training package and training materials to be updated to incorporate all the latest R&D and thus give the outcomes of the R&D a life beyond the initial release and distribution of papers.

MINTRAC has developed a *Meat Processing Environmental Officer's Skills Set*. This Skill Set has now been nationally accredited and will be used to recognise the specific skills required to manage environmental issues at a meat processing plant and to attract State funding for such training.

6 Impact on meat and livestock industry – Now and in five years time

6.1 The efficient transmission of the result of industry research and development to environment managers

The presence of the networks ensures that the meat industry training system remains current and responsive to meat industry priorities and current research findings. This is achieved through:

- rapid dissemination of research outcomes and incorporation into the national training system
- meeting formats which ensure that all attendees are receiving consistent messages from the regulator, the industry organisations and researchers
- regular provision of professional development to ensure currency of the environment manager's skills and knowledge
- opportunities for RTO staff to be exposed to the latest in environmental management and regulatory developments.

6.2 A community of practice for meat industry environment management practitioners.

Meat industry environment managers in regional and rural areas work in relative isolation to fellow practitioners either in this industry or even other food processing operations. The Environment Manager Networks continue to provide an opportunity for environment managers to interact and network with those working in their State and derive all the benefits that come from having access to the experience and expertise of others.

Likewise researchers and regulators are able to discuss the issues involved in achieving compliance with licence and regulatory requirements in an environment which encourages a collaborative approach to problem solving.

The networks are also instrumental in raising the level of discussion between industry regulators and researchers by promoting a shared understanding of environment issues, what constitute best practice and the required outcomes to fulfilling regulatory requirements.

The development of a community of practice for the meat industry's environment managers is also important in terms of identifying and consolidating industry demand for technician and operator training to meet industry and customer requirements.

6.3 Addressing industry strategic priorities

As the *Meat Industry Strategic Plan* is rolled out, the Networks provide the vehicle to ensure that the training implications of new and emerging strategies are rapidly identified. Examples of how this is achieved include

- a wide range of strategies which have been discussed and debated to address industry priorities to reduce water and electricity consumption
- methane capture and utilisation is an identified priority for the industry and the networks have visited six sites to date to discuss with companies their experience with gas generation rates, pond covers, crust and sludge removal and methane utilisation
- cogeneration is also another identified priority for research and visits to three cogeneration plants gave network members a good understanding of how the technologies are being utilised to reduce energy costs
- biomass fuels are also attracting attention from the industry and the site visit at Wingham last year has been followed up by presentations on bio mass fuels in the other States addressing the training requirements needed to make operators more conscious of environment issues on plant including such things as foreign language resources.

6.4 Ensuring there are forums for environment managers to interact with researchers, regulators and industry organisations.

State EPAs and Departments of Environment and Climate Change to have used the networks as a reliable method of communication with the meat processing sector. It provides their officers with an opportunity to explain changes in the regulatory system and areas of operations where there needs to be either changes or improvement to meet regulatory requirements. The State agencies find the format of the meetings gives them more opportunity to explain in detail the practical implications of changes and get feedback on implementation issues. State authorities have used the network meetings to explain programs such as the EREP program in Victoria and the ESAP program in NSW.

The Commonwealth Department of Climate Change also uses the networks as part of their national communication strategy for CPRS and MINTRAC will continue to engage with the Department as the policy evolves and is implemented.

Industry organisations likewise are using the meetings as a way to get their message across to those industry personnel most likely to be charged with managing environmental matters. AMPC

and MLA use the networks to sound out areas of industry RD&E needs when it comes to managing water and energy inputs as well as waste outputs.

AMPC representatives have presented the outcomes of the deliberations of the AMPC Environment Committee and the priorities that have been set for the upcoming research programs. These priorities then provide the major drivers for the environment networks agenda.

The Australian Meat Industry Council (AMIC) has utilised the network meetings to inform industry as to how the CPRS and Carbon Tax will impact on the meat processing industry. AMIC has also used the meetings to explain what representations the industry has made to government to minimise the impact of any carbon policy.

Researchers also use the network meetings for discussing potential research programs, provisional research outcomes and completed research outcomes and this enables them to evaluate the implications of their research programs for meat processing companies.

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7 Conclusions and recommendations

7.1 Communicating industry research and development outcomes to meat industry environment managers

The need for environment managers to be current with regulatory, research and developments in technology has never been more acute. Environment managers are required to be more technically proficient and competent than ever before and the requirement to defend a company's environmental management systems to auditors and regulators has never been more important.

The networks give MLA, AMPC and other research bodies a systematic and effective way of rolling out research and development outcomes to environment managers, regulators and training organisations. It ensures that they get meaningful feedback from a cross section of industry personnel previously inaccessible to them without significant effort, time and cooperation from industry.

7.1.1 Recommendation 1:

It is recommended that MINTRAC continue to place research outcomes as Agenda items for discussion at Environment Managers Network meetings and ensure it offers research organisations support in disseminating research outcomes and where necessary support change being implemented by the facilitating of relevant training programs. Where possible and appropriate these should drive the site visits so network members can see the 'real world' application of research outcomes.

In addition, where appropriate MINTRAC should run topic specific workshops in support of research outcomes as part of a comprehensive extension program. MINTRAC should also be tasked with developing and implementing documented strategies for ensuring research and development outcomes are embedded in the industry's training materials, programs and trainer professional development activities where appropriate.

7.2 Professional development of environment managers

The need for certification of skills and currency of knowledge is as pressing now as ever and the Environment Managers' Networks enable MINTRAC to identify these needs and respond by:

- promoting the uptake of the Meat Processing Environmental Officer Skill Set
- promoting the use of resource materials developed such as the Waste Water Kit, currently under development
- facilitating professional development workshops at network meetings
- lobbying for state funded qualification courses for staff working in the environment management departments
- lobbying for state funded qualification courses for operators where such training underpins regulatory requirements e.g. waste water courses.

7.2.1 Recommendation 2

It is recommended that MINTRAC should continue to facilitate professional development workshops. These workshops should be focused on the priorities identified by the AMPC Environment Committee. AMPC project researchers should be required to present to the network meetings on project outcomes and coordinate site visits where they can be used to demonstrate these outcomes. .

7.3 The ongoing maintenance of a community of practice for environment management practitioners in the red meat processing industry

The implementation of the carbon tax in Australia now more than ever requires a strong collaborative relationship between processors, technical experts and researchers in order to protect not only the financial viability of a meat processing works but also product image.

This cooperation is largely dependent on a shared level of understanding of the issues and solutions. This can only happen if processing staff have appropriate levels of training and professional development.

Likewise research and development outcomes can only be meaningfully exploited by industry and regulators if there is a comprehensive extension plan to accompany them. This should include not only a one off dissemination but also an ongoing incorporation of research outcomes into personnel training materials and refresher training courses.

7.3.1 Recommendation 3

MINTRAC should continue to work with research agencies to develop effective extension programs accompanying the roll out of research and development projects.

7.4 The nature of the demand for environment management training

Traditionally training programs for environment management staff have involved face to face delivery. These programs involved eight or more meat industry personnel being gathered in one place to receive accredited training.

However, it is increasingly apparent that in the future strategies will need to be developed to train staff in aspects of environment management. This training will not be able to be economically delivered face to face and this will require changed training strategies. Because of the 'thin market' issues and barriers to inter-state funding for course participants this will be an area of ongoing frustration for industry and difficult for RTOs to service industry demand.

7.4.1 Recommendation 4

It is recommended that MINTRAC continue to facilitate the development and delivery of e-learning solutions to this problem.