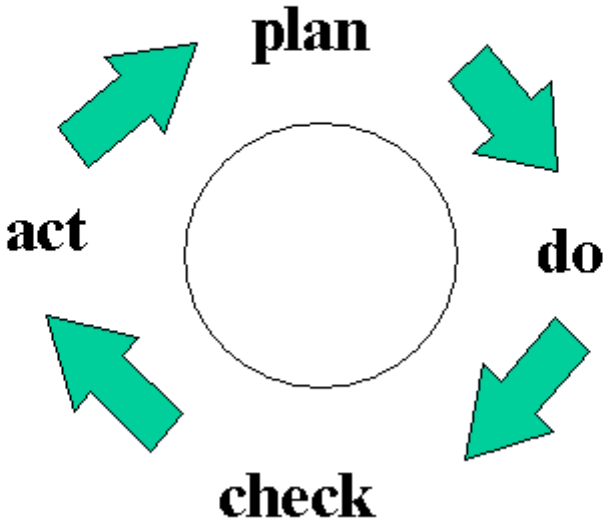
Develop a basic EMS for your property, a grain and beef farming example

March 2002

a commitment to continual improvement



GRDC Grains Research & Development Corporation

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Notes for the reader

The information provided in this example shows how a simple EMS might fit together. The format is a result of the input from farmers. This entry-level EMS model does not meet all the requirements of the international standard ISO14001, but is regarded as being more achievable in the short term.

The basic principles of EMS are presented here and can be expanded to meet ISO14001 or other specifications as needed.

Farmers who have contributed to the contents of this manual want to demonstrate to the broader community that they are doing a good job of managing the landscape and that they are willing to challenge themselves to improve their management of natural resources. This EMS approach is about streamlining farm management and identifying risks to the business.

In order to illustrate the concept of a basic EMS, a fictitious property has been created called Plains Creek, whose owners have followed a process similar to that followed by farmers participating in an industry-funded EMS project (funded by the Grains Research and Development Corporation and Land and Water Australia). The owners have used legal guidelines, catchment guidelines and personal goals to help them in setting priorities and have chosen to tackle these first.

The principle of continual improvement is the basis of any EMS and will allow farm managers and owners to broaden their environmental vision to ultimately include issues that may not be presented here.

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Step 1 An environmental review of Plains Creek

Introduction

This EMS is designed to assist us, the owners of Plains Creek, in the management of natural resources on our property. The aim of this EMS is to record the key environmental issues that we need to address and to show what we will do to deal with these issues. In order to determine the management required, we have conducted an environmental review of Plains Creek (Step 1) which consists of a simple assessment of environmental issues and a review of farm activities and environmental impacts. We will use this review as a background for the actions that are proposed in Part 2.

We are concentrating on our priorities at present, particularly those that relate to the goals of the Liverpool Plains Catchment Investment Strategy. We haven't the resources to tackle some of the issues identified. We may receive assistance to do so but there are some issues that just seem too complex to know where to start. Currently we feel that we are responsibly managing our native vegetation and the habitat of many species of fauna, and we have adopted a number of innovative farming approaches to protect our soil and water resources.

Our business is to produce grain and beef cattle, which can sometimes be in conflict with the natural ecosystem. We aim to minimise this conflict and feel that we can only make further improvements if we have some recognition of where we are now and the good job that we're doing of managing this landscape and keeping it relatively free of noxious weeds and feral animals.

We have based this EMS partly on the guidelines found in the international EMS standard ISO14001. We have decided not to seek certification to this standard at this stage and our EMS does not meet all its requirements.

Peter and Joan Cox
March 2001

Description of Plains Creek and the surrounding area

Plains Creek is a 900 ha block of cropping and pasture paddocks. Cropping of sorghum, wheat, barley and maize is carried out on predominantly flat, black soil areas (cropping history of approximately 30 years) with pasture established on red soil slopes and some paddocks of lighter sandy soil. There are 120 breeders currently being carried on the pastures (a mixture of native grasses and established grasses) under a grazing rotation designed following PROGRAZE principles.

Soil erosion has been our major resource management concern. Conventional tillage practices and continuous cropping left the country exposed to summer rains and flooding causing soil erosion and degradation. Zero till, stubble retention, opportunity cropping and rotations have seen improvements in soil health and productivity.

The immediate surrounding area is mainly farmland. Hills Creek runs along the eastern edge of the property.

We have developed a farm plan, primarily to address erosion, but it also considers how we could best manage dryland salinity. There are a couple of small outbreaks of salt on the property. Changes to vegetation cover and pasture management above these outbreaks are aimed at addressing this problem, though change is slow. The plan also focuses on monitoring to assess our progress and the long-term trends in soil movement and salinity. We participate in the local Landcare group.

Environmental issues

Initially, we identified major issues of concern on Plains Creek by working through a self-assessment manual for grain farming. This 27-page booklet, combined with some consultation with Liverpool Plains resource staff, helped us to determine areas needing further examination. We completed the self-assessment manual in April 2001, prior to commencing development of the Plains Creek EMS.

There are many issues of concern and the EMS shows how we have considered these issues and ranked them in order of priority. Our key environmental concerns relate to managing our soils and the storage and use of chemicals on the property. There are areas of apparent environmental impact on our property, localised erosion for example, and we are continuing our efforts to reduce the usage of chemicals.

Step 2 Reviewing legal requirements and other guidelines

As a starting point, it has been most practical to identify our legal obligations using key legal documents such as Environment Protection Acts, State Codes of Practice, and other specific industry or catchment guidelines or standards (see page 6). The Plains Creek environmental policy is particularly relevant as it provides us with specific guidance for managing our farm and communicating our intentions to others.

Information concerning legislation and other guidelines is sourced and updated using the resources of the environmental management systems officers employed by NSW Agriculture.

Compliance with the requirements of key legislation and guidelines is checked as part of our internal audit process (Appendix 2 Checks and review).

Step 3 Plains Creek environmental policy

On Plains Creek we believe that our farming system, based on rain-fed cropping and grass-fed beef production, has impacts on both on-site and off-site natural resources. The purpose of this environmental policy is to summarise how we manage these impacts.

We are committed to managing environmental issues identified on the property with particular emphasis on managing our soils, and maintaining environmental standards that are consistent with industry codes of practice and legislation. Improving our understanding of relevant legislation and guidelines is an ongoing process, not always easy. Our business requires hazardous activities involving machinery, chemical storage and use, animal handling and owner-operator safety issues. We recognise that in carrying out our normal business we impact on our neighbours, as they do on us.

These impacts, potential and actual, include the following:
On-site:

- storage and use of chemicals, fuels and veterinary supplies;
- machinery maintenance and use;
- soil erosion and health;
- water quality and usage;
- biodiversity decline (including in the soil);
- salinity.

Off-site:

- products of erosion – sedimentation, dust, chemical and nutrient movement;
- weed seed;
- chemical spray drift.

To help minimise these impacts and prove our sustainability, we monitor the following:

- soil health;
- soil pH;
- soil water;
- water quality – dam and irrigation;
- pasture – cover (target 70%) and species;
- cropping productivity – kg grain/mm/ha/annum.

Some specific targeted improvements include:

- shelter belts along our boundary to support wildlife and reduce the potential of salinity impacts;
- increased use of organic waste on low pH areas.

Through continual improvement of our EMS we are committed to:

- meeting the goals of the Liverpool Plains Catchment Investment Strategy;
- preventing the pollution of land, water and air by using realistic and achievable guidelines;
- protecting native fauna and flora in all areas of farm operations, with a specific focus on the retention of native vegetation and regrowth and the protection of riparian areas;
- minimising the volume of waste generated on-farm and using recycling where possible;
- using the most appropriate indicators available to monitor farm operations;
- informing all farm members and contractors of their environmental responsibilities.

We aim to produce a quality product and achieve ecologically sustainable production of grain and beef on Plains Creek by minimising direct and indirect environmental and social impacts, conserving our natural resources and improving our quality of life.

Peter and Joan Cox
April 2001

Specific environmental legislation, guidelines and codes of practice, and how they determine our responsibilities for the management of Plains Creek

Guiding document	Objective/Responsibility
Environmental Policy:	Principal guiding document for EMS.
NSW State legislation:	
Native Vegetation Conservation Act 1997	To prevent the inappropriate clearing of vegetation, and to promote the significance of native vegetation.
Noxious Weeds Act 1993	To identify noxious weeds and work out which particular control measures need to be taken and specify those control measures.
New South Wales Occupational Health and Safety Act 2000	To secure the health, safety and welfare of persons at work, to protect persons at a place of work (other than persons at work) against risks to health or safety arising out of the activities of persons at work.
Pesticides Act 1999 No. 80	'To promote the protection of human health, the environment, property and trade.' • Understand your responsibilities regarding the management of pesticide storage and application. • Do not use pesticides if harm is unavoidable. • Store pesticides in the correct containers. • Read and follow the instructions on the label. • Liability is shared between all those involved in decision making for pesticide use. • Spray under suitable conditions. • Mandatory recording of chemical application.
Protection of the Environment Operations Act 1997	Notify EPA of any pollution incident (spill) as soon as practicable after becoming aware of the incident. Similarly, contractors to notify farm management following incident.
Threatened Species Conservation Act 1995 No. 101	'…..to ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed, and to encourage the conservation of threatened species, populations and ecological communities by the adoption of measures involving co-operative management.'
Waste Minimisation and Management Act 1995	Treat waste as a resource. Reduce the environmental impact of waste. No licence conditions are relevant to this property.
Guidelines:	**Provide direction for key farming activities**
Liverpool Plains Catchment Investment Strategy regional example	Six key natural resource management issues to be managed: • Dryland salinity and ground water recharge • Flooding • Soil erosion • Water quality and quantity • Biodiversity • Riparian zone

Guiding document	Objective/Responsibility
Federal legislation:	
Environment Protection and Biodiversity Conservation Act 1999 The EPBC website www.ea.gov.au/epbc/index.html contains up-to-date information on all issues relating to the EPBC Act.	Commonwealth focus on 'national environmental significance' including: • World Heritage areas • Ramsar wetlands • nationally threatened species and communities • listed migratory species
Guidelines:	**Provide direction for farming activities**
Guidelines for the Application of Agricultural Chemicals in the Gunnedah District – 1998 3rd edn.	Outlines planning and responsibilities for growers and applicators. To continually strive to eliminate off-target pesticide movement and the negative human, biological and environmental impacts resulting from pesticide exposure in the Gunnedah district.
Graincare On-farm Quality Assurance	Modules and code requirements for management, chemicals and grain. Food safety focus to meet market and customer requirements, including: • training • internal audits and corrective action • document control • ag-vet chemical storage • inputs and suppliers • crop management • harvesting and equipment • on-farm grain storage and handling
Other:	**Detailed guidance**
Australian Standard 1940	Standard for storage and handling of fuel: • minor storage 5000 L petrol, 10 000 L diesel • emergency planning • signs • spill prevention, control and clean-up • fire extinguishers • bunding Larger than minor storage must have strict procedures in place as indicated by Sect. 9.
WorkCover NSW Code of Practice No.422 Safe Storage and Use of Chemicals.	To meet health and safety obligations. Includes chemical storage and use guidelines: • maintain labels on chemical containers • storage and disposal of unlabelled containers • MSDS sheets available for all chemicals • risk assessment – prevent environmental and human exposure • record keeping – site assessment (annual) • details of application procedures • transport (incl. Dangerous goods) • chemical storage shed design – roof ventilation – concrete floor, door sills & block walls • emergency preparation • clean-up procedures • personal protective equipment • disposal of containers

Step 4 What environmental impacts are significant on this property?

We have determined which environmental impacts are significant by completing Table 1 using the following:

- Knowledge and practical experience.
- Discussion with extension advisers, other operators and potential markets.
- Documents, codes of practice and Natural Resource Management Plans
  Liverpool Plains Catchment http://www.catchment.com/cis/Liverpool/home.html

Table 1 instructions

1. Check that the list of activities listed in column A are relevant to your farm. Add or delete as needed.

2. Look at the list of impacts (column B) and assess whether any of these are occurring or could potentially occur on your property (even if small).

3. If an impact is occurring put **yes** in the matching row in column D. Where a legal requirement or guideline (column C), like a catchment strategy or best practice, highlights this impact, it should automatically be regarded as being significant. You will also use your personal knowledge and experience and other advice to work out which impacts are significant.

   'Significant' means that they are important and should be addressed in your EMS!

4. Where you already have a management strategy in place for this impact, place an * in column D.

5. Start to determine your response to the impacts by listing the corresponding cause (aspect) in column E and the related activity. If you are developing an environmental management system (EMS), use the cause from column E and the impact from column B in the preliminary ranking table on page 11.

Table 1. Determining the significant issues

A **Principal farm activities**	**B** **Current or potential impacts**	**C** **Legal requirement or guideline**	**D** **Impact listed in column B is significant (yes/no)**	**E** **What is the cause(s) that should be addressed?**
Grain cropping Land clearing Planting Spraying Pest management Harvesting Fertilisers Rotations Stubble management Chemical storage Fuel storage Maintenance	dust	Yes	No	
	noise		No	
	species loss		No	
	dryland salinity		Yes	Manage water balance Rotations, ground cover, appropriate vegetation
	greenhouse gas production		No	
	fossil fuel depletion		Yes*	Efficiency, fuel type
	loss of organic matter		Yes	Cultivation
	habitat destruction		Yes*	Land clearing
	soil erosion		Yes*	Lack of ground cover
	local air contamination	Yes	Yes*	Spray drift
	sedimentation		No	
	excessive fuel use		Yes*	Maintenance
	fertility decline		Yes	Rotations, soil health
	water contamination	Yes	Yes	Chemical storage and use
	soil contamination	Yes	Yes	Chemical storage and use
	human safety risk	Yes	Yes	Chemical storage and use
	nutrient leaching			
	herbicide resistance		Yes*	Chemical use and choice

Table 1 (continued)

A **Principal farm activities**	B **Current or potential impacts**	C **Legal requirement or guideline**	D **Impact listed in column B is significant (yes/no)**	E **What is the cause(s) that should be addressed?**
Managing natural resources Native vegetation Endangered species Streams and waterways Soil health	**feral animals**	Yes	Yes*	Control
	noxious weeds	Yes	Yes*	Control
	poisons	Yes		
	human health	Yes		
	species loss	Yes	Yes*	Habitat protection
	dryland salinity		Yes*	Water balance
	loss of organic matter		Yes	Rotations
	habitat destruction		Yes*	Cultivation Stock movement
	soil erosion		Yes	Stubble and rotations
	local air contamination			
	ground water rise			
Waste management Farm tip Burning Recycling Renewable energy	water contamination			
	soil contamination		Yes	Hazardous waste
	ground water contamination		Yes	Hazardous waste
	local air contamination	Yes		
	metals			
	waste oil		Yes	Recycling
	contribution to landfill			
	contaminated sites	Yes	Yes*	Dip site remediation
	chemical drums	Yes	Yes*	Reusable drums
Stock management Feed storage Drinking water Shelter Riparian zones Rotations	contaminated feed	Yes		
	animal health	Yes	Yes*	Animal monitoring
	contaminated dip sites	Yes	Yes*	Dip site remediation
	stream bank erosion		Yes	Stock access to creek
	sedimentation			
	water nitrification			
	soil compaction		Yes*	Machinery passes Stock on cultivation
	erosion		Yes *	Monitoring and stock rotation
Grain storage On-farm storage Aeration	capital cost			
	reduced saleability of grain	Yes	Yes*	Pests
	residues in grain	Yes	Yes*	Chemical use and in-storage pest control
	residues in stock	Yes	Yes*	Chemical use and treatments

* = management strategy is in place to address this impact

NOTE: There are also a number of risk assessment templates (paper and electronic) that can be used as a more objective way of working out which impacts are of concern and should be tackled first. Contact NSW Agriculture Environmental Systems Specialist Genevieve Carruthers for more details – Ph. (02) 6626 1237.

Listed below in Table 2 are the significant impacts/issues that were identified in the previous steps. For areas where we consider that we are adequately addressing significant impacts or issues, we have included a brief description of the current management initiative.

Table 2. Significant issues and current management

Significant environmental issue	What is currently in place (**bold**) or being considered
Secure chemical storage and safe container disposal	▪ Bunded chemical store ▪ Recycled containers used where available
Chemical application	▪ **Weather conditions are monitored** ▪ Spray records maintained as per *Pesticides Act* ▪ Crop scouting and IPM training ▪ Shielded sprayer to reduce chemical applied
Native vegetation/habitat/ riparian zone	▪ Agroforestry project ▪ Encourage native grasses along creek/riparian zone ▪ Crash grazing only along riparian zone
Grain storage	▪ **Monitoring of silos** ▪ Improved aeration for drying grain
Farm safety	▪ **Risk assessment** ▪ **Emergency plan in place**
Soil erosion and sediment	▪ **Strip cropping** ▪ **Stubble retention** ▪ **Manage erosion gullies** ▪ **Rotational grazing and ground cover monitoring** ▪ Controlled-traffic layout
Soil health and productivity – organic matter, fertility	▪ **Stubble retention** ▪ Green manure crops
Pest and weed management	▪ **Rotate herbicides** ▪ **Feral animals control program** ▪ Shielded sprayer to reduce quantities of chemical
Energy efficiency, machinery maintenance and use	▪ **Key equipment is maintained by operator** ▪ Controlled-traffic farming to reduce fuel and associated materials usage
Fuel storage	▪ Auto cut-off nozzles ▪ Bunding and signs
Dryland salinity	▪ **Opportunity cropping** ▪ **Minimise bare fallows** ▪ **Break of slope tree planting** ▪ Agroforestry
Farm waste	▪ **Recycling where possible** ▪ **Council tip used for other waste** ▪ Bunded holding tank for waste oil (recycling) ▪ Fence off dip sites and farm tip

Step 5 What actions are we planning?

This listing indicates where we should concentrate our efforts on Plains Creek. We have selected the key issues from Table 2 and a number of personal goals, and incorporating these has enabled us to select the following issues in order of priority.

Issue/impact and cause to be considered	Rank
Safe chemical storage – upgrade chemical store with bunding, signs, closed transfer system for chemicals and ventilation	1
Vegetation management – planting of trees for agroforestry venture, encourage Plains grass along riparian areas using crash grazing or slashing	2
Keep adequate records for chemical application – meet requirements of *Pesticides Act*	3
Integrated pest and weed management strategies – use less chemical and avoid development of herbicide resistance in weeds	4
Safe storage and transfer of fuel – bund for fuel tanks and automatic cut-off nozzles	5
Waste oil recycling and old chemicals – reduce accumulation of waste materials and dispose of out-of-date chemicals at ChemCollect	6
Silo aeration – improve capacity to dry wet grain for market and maintain quality whilst in on-farm storage	7

Step 6 Objectives and targets, and action plans

From the above list we have defined some goals or objectives and targets that we hope will address these issues over the coming years. The objectives and targets have been set out on the next page in a summary of our action plans.

This Action Plan Summary will be used as a wall chart in our office to remind us of the specific targets that we are aiming to meet in our EMS. It is our main method of checking our progress towards our objectives.

It is noted that these actions will be carried out in addition to existing farm activities and environmental management initiatives. Some targets may not be reached by the target dates. We are, however, committed to achieving these over time.

Action Plan Summary

NOTE: all targets are the responsibility of Peter Cox

No.	Objective	Targets	When	Done
1	**Develop basic EMS for Plains Creek**	Customise the NSW Ag. basic EMS.	Dec. 2001	**Yes***
		Put an emergency plan in place.	Dec. 2001	**Yes***
		Complete a monitoring page to list all appropriate indicators.	Dec. 2001	**Yes***
		Develop an internal check and review.	Dec. 2001	**Yes***
2	**Improve chemical management on Plains Creek, including integrated pest and weed management**	Construct a suitable chemical store.	Dec. 2002	
		Customise the store to suit farm requirements with safety shower, HAZCHEM warnings and appropriate protective equipment.	Dec. 2002	
		Maintain records of all chemicals applied.	July 2002	
		Adopt returnable system for all chemical drums where possible.	July 2002	
		Establish record keeping and MSDS sheets for all chemicals in storage.	July 2002	
		Complete integrated pest management training.	Dec. 2002	
		Install activated carbon filter in tractor.	Mar. 2002	
		Procedure in place to notify neighbours prior to spraying.	Dec. 2002	
		Strategic tillage trialled for control of ryegrass.	June 2003	
3	**Improve waste management**	Find a suitable contractor to recycle oil.	Dec. 2002	
		Legally dispose of out-of-date/unknown chemicals using ChemCollect.	June 2002	
4	**Improve grain storage quality and capability**	Meet GrainCare requirements for quality assurance.	June 2002	
		Install alternative drying system.	July 2003	
5	**Improve fuel storage**	Construct concrete bund around storage tanks to 110% capacity of largest tank.	Sep. 2002	
		Install auto cut-off nozzles and appropriate signs for storage.	Apr. 2002	
6	**Manage and expand native vegetation communities**	Plains grass community regenerated along riparian zones.	July 2004	
		Agroforestry venture planted along break of slope and in non-productive sandy soil paddocks.	July 2003	

*Yes = completed if these guidelines are followed

Step 7 Monitoring

In order to farm efficiently we aim to monitor a variety of indicators. These provide us with information about when to sow, spray, harvest or move stock, as well as informing us about the effects our farming might have on the property and the surrounding environment. With the right information we can make better decisions on farm layout, what crops to sow, how to improve and protect our soils and how to become more efficient. Better quality information will allow us to improve our quality of life and have more time to enjoy our family and go fishing.

Plains Creek monitoring program

Activity or Indicator	Method	Who	When	Record
Rainfall	Gauge (mm)	Peter Cox	daily	chart
Weather conditions for spray events	Measured prior to spray events using weather station.	Peter Cox	as required	spray diary
Chemical store inventory	Check condition of stored chemicals.	Peter Cox	2-monthly	shed diary
Sediment run-off/erosion from paddock	Monitor soil levels against pegs placed in key erosion points of riparian zone. Photo taken.	Peter Cox	following storm event	photo album
Soil health	Invertebrate activity.	TBA	TBA	TBA
Salinity	Piezometer readings.	Peter Cox	annually	farm diary
Soil water	Monitor soil profile in fallow and crop.	Peter Cox	as required	farm diary
Soil moisture	penetrometer	Peter Cox/ agronomist	prior to crop	farm diary
Soil nutrients	Soil samples to accredited lab to aid in fertiliser and crop decisions.	Agronomist	prior to crop	farm diary
Pest levels	Scouts and agronomist record pest levels as requested.	Agronomist or crop scout	as crop cycle demands	farm diary
Water use efficiency	kg grain/mm/ha/annum	Peter Cox	per crop	farm diary
Ground cover	Native vegetation photo	Peter Cox	annual	album
	Stubble cover > 30% quadrats/visual assessment	Peter Cox	per crop	farm diary
	Pasture cover > 70% Visual assessment as per PROGRAZE.	Peter Cox	when cattle are moved	farm diary
Grain silos	Monitor condition of silos, stored grain and pest levels.	Peter Cox	industry guidelines	farm diary
Action plans	Check plan on office wall for completion dates.	Peter Cox	regularly	wall planner

Step 8 Farm management

Other key areas of our EMS include:

Farm safety and emergency planning

We have developed an emergency plan for Plains Creek and identified the risks of accidental injury or environmental incident that could occur. The Emergency Plan is presented in Appendix 1 Emergency plan.

Communication (neighbours and contractors)

We consult with our neighbours prior to conducting any activity that might impact upon them or their property.

All contractors are provided with a copy of our environmental policy and are given specific instructions regarding possible environmental concerns.

We record key communication from neighbours, staff, contractors and others. Where an issue needs further action, this is recorded in our
Issue review .

Training

We have identified integrated pest management (IPM) and soil health as areas for future training.

EMS records

We maintain all relevant records of what we observe, monitor and achieve in the management of Plains Creek. All records are located in the farm office either as a record in the relevant diary or stored on the computer under C:/Farm Records/EMS.

Key recording formats for assessing significant environmental impacts, keeping track of our action plan targets, and our monitoring program (all contained in this EMS document) are displayed on our office wall for easy reference.

Internal checks and review

We use checklists and an annual review to monitor our progress on the property. We are particularly keen to:

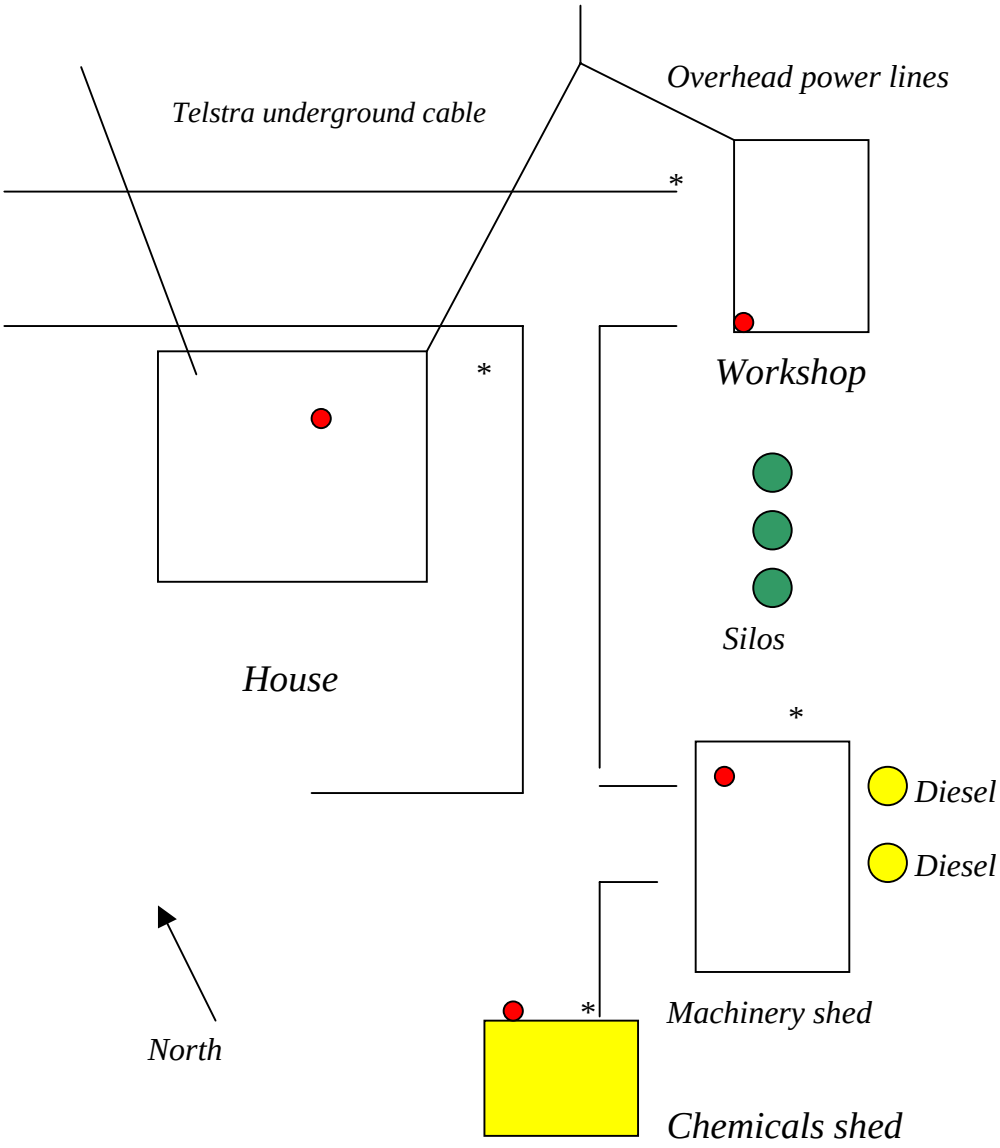
- check our progress in reaching the goals of our action plans;
- review any accidents or problems that may have occurred;
- plan for the coming year;
- build on our achievements and aim for continual improvement.

Appendix 1 Emergency plan

Incident (in order of risk)	Response (*preventative measures in italics*)
House fire	• **Assess fire before contacting fire service immediately.** • **Isolate fire where possible using appropriate extinguishers.** • **Complete issue review record and review cause of fire.**
	• *Conduct fire drill with family to train children how to react to a fire emergency.* • *Have properly serviced fire fighting equipment in the house and machinery shed.* • *Install smoke alarms if not already present.* • *Practise fire drills with the family.*
Chemical spills	• **Clean up by applying sand/soil/sawdust and removing contaminated soil into bucket where appropriate.** • **Report according to legal requirements (if spill is significant) and complete issue review record.**
	• *Ensure storage and mixing occurs in specified bunded locations.* • *Ensure all operators are wearing protective clothing.* • *Ensure relevant MSDSs are available and referred to.*
Chemical spill affecting user	• **Stop work.** • **If chemical has come into contact with skin, use decontamination shower to thoroughly rinse affected area. Use eyebath where chemical has come into contact with face and eyes.** • **Remove contaminated clothing where possible.** • **Follow instructions on container or material safety data sheets (MSDSs) if chemical is swallowed – all data sheets should be displayed within the chemical storage area.** • **Contact Poisons Information Centre for guidance in treating the affected person.** • **Complete issue review record and review cause of spill.**
Accident/injury	• **If accident occurs – stop work.** • **Administer first aid.** • **Assess condition of the patient and contact ambulance if required.** • **Complete incident report.** • **Contact WorkCover where necessary.**
	• *Maintain first aid kits.*
Equipment/ machinery fire	• **Assess fire before contacting fire service immediately (if required).** • **Isolate fire where possible using appropriate extinguishers.** • **Complete incident report.**
	▪ *Have strategically placed and properly serviced fire fighting equipment near all machinery.*

Appendix 1 Emergency plan (continued)	
Incident (in order of risk)	**Response** (*preventative measures in italics*)
Fire in or around machinery and storage sheds	• **Assess fire before contacting fire service immediately (if required).** • **Isolate fire where possible using appropriate extinguishers.** • **Complete incident report.**
	▪ *Have strategically placed and properly serviced fire fighting equipment in all sheds.* ▪ *Maintain fire breaks around fuel stores and between buildings.*
Fuel spills	• **Cut off flow of fuel to prevent further spillage.** • **Transfer remaining fuel to other storage.** • **Spread suitable absorption material and prevent spill from reaching waterways.** • **Clean up, removing contaminated soil into bucket.** • **Inform relevant authorities if required.** • **Complete incident report.**
	• *Automatic cut-off valves installed on hoses.*
Flood	• **Where possible move machinery to higher ground.** • **Move stock to higher ground.**
	• *Monitor weather data and flood warnings for advice on flood heights and weather conditions.*
Discharges to waterways	• **Where contamination occurs notify authorities and downstream neighbours immediately.** • **Use spill boom to contain contaminated area.** • **Complete incident report.**
	• *All activities with potential to contaminate soil and waterways are conducted within designated bunded area where possible.*
Fertiliser spills	• **Remove remaining fertiliser from spill area.** • **Clean up as for chemical/fuel spill.** • **Complete incident report.**
Sewage treatment system failure	• *Ensure septic (or other) system is regularly maintained and serviced.* • *Monitor efficiency of absorption trench.*

Plains Creek Site Plan



Key

- Fire extinguisher
- Hazardous area
- * Water

GPS coordinates Plains Creek -

Emergency Phone Numbers

Fire/Police/Ambulance	000	Fuel Supplier 2222 55555
Local Fire Service	6747 3224	Fire Chief – Bill Jones
Poisons Hotline	13 11 26	

Appendix 2 Checks and review

Internal audit checklist

Key recommendations from internal audit

Person conducting the audit: Date:	
Part A	Insert things to do from Part A.
Part B	Insert things to do from Part B.

NOTE: Additional questions may be needed depending on the range of activities. Following this format it is relatively easy to expand the audit to incorporate Quality Assurance and Farm Safety questions concerning compliance with GrainCare/ CattleCare requirements or Occupational Health and Safety legislation.

Part A – Catchment Strategy checklist – Liverpool Plains

Question	D	I	Observations
Have you mapped the Land Management Units (LMUs) on your property?			
Have you compared your current management against recommended management in the Liverpool Plains Catchment Investment Strategy?			
Do you have a plan to maintain ground cover on:			
Cropping paddocks?			
Grazing paddocks?			
Are plans in place to manage tree cover?			
Are plans in place to manage native grasses?			
Are plans in place to manage riparian areas?			
Have you assessed the following as part of the overall management of your property:			
Dryland salinity?			
Erosion?			
Biodiversity (plant species, animals, birds)?			
Water quality?			
Effects of flooding?			
Riparian zone condition?			

D = no, or developing

I = yes, or in place

Observation = what proof is available, i.e. maps, plans

If a question is not relevant, write N/A.

Part B – Generic management system checklist

Question	D	I	Observations
Is an environmental policy displayed on the property?			
Is there an up-to-date list of all current farm activities and possible related impacts?			
Have the major impacts been listed?			
Have objectives and targets (action plans) been set to address these impacts on the property?			
Is a list of legal and other obligations maintained and updated at least annually?			
Are appropriate records kept which are legible, can be easily found and are protected from damage or loss?			
Is a monitoring program in place and are relevant records kept?			
Is an emergency plan covering all potential risks prepared and displayed on the property?			
Have the goals of the EMS been communicated to staff, contractors and neighbours (where relevant)?			
Have key communications and, where necessary, appropriate responses been recorded?			
Is the EMS reviewed at least annually and changes or updates made where needed?			

D = no, or developing

I = yes, or in place

Observation = what proof is available, i.e. maps, plans

If a question is not relevant, write N/A.

Management Review format	**Date**
	Review No.

Persons attending	**Where**
	Plains Creek

Topic – comments and actions		**Person responsible**	**Target date**	**Completed date**
Environmental policy statement	*Is it still relevant?*	Peter and Joan Cox		
Review of legal issues	*Any new guidelines or laws to follow?*	Peter Cox		
Results of internal audit	*What are the recommendations?*	Peter Cox		
Review training				N/A
Review issues review records	*Anything urgent to deal with?*			N/A

Action plan targets for 2001; Alterations to dates; Progress so far	
Action plan number	Progress and comments
	What has happened with the objectives and targets? Have they been met or should they be altered?

New action plans proposed (if relevant)	
	What issues should now be dealt with?

Miscellaneous actions or events

To be truly effective and cut down on meetings and paperwork, the management review should tie in with other management activities like financial planning and production and sales planning.

Appendix 3 Incidents and communication

In line with the wish to integrate all parts of farm management where practicable, all incidents arising from farm activities, including Occupational Health and Safety Issues and Quality Assurance, have been incorporated into Corrective and Preventative Action by inclusion in an issue review record.

Issue review record

'Issue' is described as covering an emergency, spill, accident, hazard, problem in the EMS, any activity or incident that would need corrective and preventative actions to be undertaken, and any issue that could impact on the farm or its management.

Issue of concern _____Review date _____

Where did the issue occur? _____

When did the issue occur? _____

Details: _____

_____

Risk (assess probability of causing harm and the seriousness of that harm)

LOW MEDIUM HIGH

Were there any injuries? _____

To whom? _____

Was there damage to property or machinery? _____

Was the issue avoidable? If so, how?

_____

Did the emergency response plan include procedures to be followed? *Yes/No*

Was the procedure followed? *Yes / No* Did the procedure work? *Yes / No*

If no, why not?

_____

What improvements should be made to the procedure?

_____

Are there any control and preventative actions that should be put in place? *Yes/No*

_____

If not, what else should be done? _____

Is there anything that should be reviewed during the management review?

_____

Signed: _____