

General environmental duty

Code of practice for the release of stored water from privately owned farm storages to receiving waters in the Queensland Murray-Darling Basin

Prepared in accordance with Section 318E of the
Environmental Protection Act 1994

December 2016

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- Cotton Australia
- Smartrivers
- Border Rivers Food and Fibre
- Queensland Farmers Federation

Other stakeholders consulted are also acknowledged:

- Darling Downs Environment Council Inc.
- Australian Floodplain Association
- Lower Balonne Working Group
- Lower Balonne Water Network
- Northern Basin Aboriginal Nations
- Queensland Murray-Darling Committee
- Department of Natural Resources and Mines (DNRM)
- Department of Science, Information Technology and Innovation (DSITI)
- Department of Agriculture and Fisheries (DAF)
- Department of the Environment and Energy (DEE) Office of the Commonwealth Environmental Water Holder (DEWH).

Acknowledgement of the Traditional Owners of the Murray-Darling Basin

The Department of Environment and Heritage Protection (the department) would like to acknowledge and pay respect to the past and present Traditional Owners of the region and their Nations. The department acknowledges that the Traditional Owners of the Murray-Darling Basin have a deep cultural, spiritual and ceremonial connection to their lands and waters and understands the need for recognition of Traditional Owner knowledge and cultural values in water quality planning.

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Foreword

The irrigation community has a significant responsibility to be active stewards of our environment. The Australian cotton industry has had a long tradition of pro-actively protecting our environment while being a world leading natural fibre producer.

Our industry vision is – **“Australian cotton, carefully grown, naturally world’s best”**.
In drafting this Code we have drawn on 20 years of experience with our Cotton Best Management Program *myBMP*.

While the Code is a stand-alone document, Cotton Australia is confident that the many elements that have been borrowed from *myBMP* will hold the users of the Code in good stead.

Cotton Australia believes that the *Code of practice for the release of stored water from privately owned farm storages to receiving waters in the Queensland Murray-Darling Basin* will provide storage operators and environmental managers with greater opportunities for managing environmental outcomes, while minimising social and economic impacts on communities that rely on irrigation.

Adam Kay,
Chief Executive Officer
Cotton Australia

Table of contents

1. Introduction	5
2. Objective of the Code.....	5
3. Scope of the Code	6
4. Commencement date.....	6
5. Amendment of the Code	6
6. About release of stored water	7
7. Using the Code of Practice	9
7.1. Performance outcomes	9
7.2. Control measures	9
7.3. Best practice	10
8. Environmental management plan	11
8.1. Performance outcome 1	12
Appendix 1: General obligations under the <i>Environmental Protection Act 1994</i>	19
Appendix 2: Description of monitoring programs to be conducted during initial releases of water from privately owned farm storages.....	21
Appendix 3: Prescribed water contaminants as listed in Schedule 9 of the <i>Environmental Protection Regulation 2008</i>	22

1. Introduction

This environmental Code of practice has been prepared to provide guidance to operators (operators are landholders that undertake the action of releasing stored water to receiving waters) to help them comply with the *Environmental Protection Act 1994* by meeting their general environmental duty. The Code includes the environmental best management practices developed by industry within the Environmental Management Plan (EMP).

Under Section 319 of the *Environmental Protection Act 1994*, all persons in Queensland must fulfil their '**general environmental duty**'. This is defined as follows: '**A person must not carry out an activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm**'. See *Appendix 1*.

This Code of practice describes **the activity “release of stored water from privately owned farm storages to receiving waters”, hereafter referred to as “release of stored water”**, the potential impacts on the environment, and how those impacts can be mitigated in the interests of achieving environmental compatibility and complying with the *Environmental Protection Act 1994*. The geographic scope of application of the Code of practice is the Queensland Murray-Darling Basin.

Although this environmental Code of practice is a voluntarily adopted standard for the release of stored water, complying with this Code provides the operator with a defence against a charge of unlawfully causing environmental harm or related acts to the extent that the Code is applied to the activity and the operator complied with the Code of practice (Section 493A (5) (a) and (b) of the *Environmental Protection Act 1994*). If operators do not comply with this Code they may still rely upon the defence of complying with their general environmental duty, but will have to show how they met their general environmental duty another way.

This environmental Code of practice and the accompanying Explanatory Guide are published on the Department of Environment and Heritage Protection website at www.ehp.qld.gov.au.

2. Objective of the Code

The environmental Code of practice, and accompanying Explanatory Guide, aims to:

- address the matters under Section 319 (2) of the *Environmental Protection Act 1994*, including:
 - the nature of the harm or potential harm, and
 - the sensitivity of the receiving environment, and
 - the current state of technical knowledge for the activity, and
 - the likelihood of successful application of the different measures that might be taken, and
 - the financial implications of the different measures as they would relate to the type of activity
- describe environmental issues confronting the release of stored water,
- assist operators to better consider the environment with which they interact,
- guide the on-farm planning in relation to possible release of stored water to ensure operations meet requirements of decision-making authorities,
- provide advice to decision-making authorities to enable them to make consistent decisions with respect to release of stored water,
- suggest practical measures to avoid or minimise environmental and social impacts associated with the release of stored water,

- allow industry to establish a benchmark of environmental performance associated with the release of stored water, and
- demonstrate to the community the environmental compatibility of the release of stored water.

3. Scope of the Code

This environmental Code of practice addresses environmental aspects of relevance to the action “release of stored water from privately owned farm storages to receiving waters” only and as it relates to the *Environmental Protection Act 1994* only. It does not cover environmental or approval issues associated with planning or construction of storages, of initial water extraction or re-capture, or of any aspect of farming operations, and does not cover aspects covered by other legislation such as occupational health and safety, water resource management or fisheries.

The Code of practice does not restate any requirements of the *Environmental Protection Act 1994*, nor does it override or replace federal, state or local government legislation, regulation, plans or policies.

The Code of practice applies only to the watercourses within the Queensland Murray-Darling Basin.

4. Commencement date

Under section 318E(1) of the *Environmental Protection Act 1994*, the Minister may, by gazette notice, make Codes of practice stating ways of achieving compliance with the general environmental duty for an activity that causes, or is likely to cause, environmental harm.

This environmental Code of practice commenced on 16 December 2016 and has effect for seven years.

To continue to have effect, the code of practice must be reviewed and approved by the Minister by 17 December 2023.

5. Amendment of the Code

Once the Code has been gazetted it may be amended at any time by gazette notice, particularly as further relevant data becomes available such as from formally or informally related monitoring programs.

Industry members are encouraged to provide feedback and to report new initiatives to their associations, so the Code can evolve.

6. About release of stored water

Initial impetus for the activity was based on consideration by the Commonwealth Environmental Water Holder (CEWH) of the use of private irrigation infrastructure to divert, store, supply and/or re-direct environmental water as part of active water management in the Northern Unregulated Rivers of the Murray-Darling Basin.

Since the concept was originally raised, release of stored water for purposes other than those of the CEWH have been identified. These could include:

- request by a State agency to satisfy a State purpose
- to allow a landholder to move water from one location to a nearby location, or
- to lower the water level in a private storage which was in urgent need of repair.

Other approvals may be needed to support these purposes and they are not part of this Code of practice. The Code is concerned with the potential impacts of releasing stored water on the values of the receiving environment, and those impacts and values are essentially the same irrespective of the purpose of release.

Any release requested by the CEWH would be for the purpose of achieving a targeted beneficial environmental outcome related to the environmental watering requirements specified for the region.

Contractual arrangements for the release of stored water would be agreed between landholders and the party requesting release (e.g. CEWH or a State agency). Such contractual arrangements are not part of this Code.

Environmental Risks

There are a number of environmental risks associated with the release of stored water to receiving waters. These primarily relate to the potential for the water to contain prescribed water contaminants, as per Schedule 9 of the *Environmental Protection Regulation 2008* (Refer to Appendix 3). In summary:

- The activity of releasing stored water could potentially cause harm to the environmental values of the receiving waters.
- Contaminants may:
 - be present in the water when initially extracted,
 - be added to the stored water via farming activities,
 - develop as a result of changes to the quality of the stored water, and
 - result from erosion of the discharge pathway.
- The water in storage originates from river flows and / or overland flow, extracted under licence and primarily during elevated flow events. As such, whatever the quality of this water, the initial level of risk associated with extracted water is consistent with that of the water in the river. The Code cannot offer controls on the quality of this ambient water.
- The potential to add contaminants via farming activities relates to either:
 - direct contamination from spills during transport or mixing of chemicals, incorrect use, or poor control of application leading to drift
 - indirect contamination via the farm water management system.
- Each of the above risks has been addressed within the Code via incorporation of existing and accepted management strategies which have a high probability of success.
- The quality of stored water may change as a result of the time the water is held in storage and aging effects related to stratification (affecting temperature, dissolved oxygen and other attributes). The Code includes a simple monitoring approach to

determine if stratification exists and suggests physical management options to reduce the effects of stratification prior to release of water.

- Erosion of the discharge pathway or storage walls may add suspended sediment (a prescribed water contaminant) to released water. The Code includes measures to reduce the risk of such erosion and mandates repair of any evident erosion.
- The active flow management options nominated by the CEWH all currently relate to enhancing (or supplementing) a naturally occurring flow event. As such, when releases from storages are activated they are likely to represent a relatively low proportion of total flow in the river. While the annual flow management priorities of the CEWH will change over time and as determined by recent climate, as long as the environmental watering requirements remain as specified in current planning documents, the likely link of releases to naturally occurring flow events will remain strong.
- With appropriate implementation of the control measures within the Code, the risk of environmental harm from release of stored water is considered very low to low and any consequences likely to be localised and at a minor or inconsequential level.

Risks to Aboriginal Values and Uses

Aboriginal people have a strong spiritual, physical and cultural connection to land and water. Rivers and waterholes have significant value to the Aboriginal community for cultural, spiritual and ceremonial purposes. These aquatic ecosystems are important for people of the Aboriginal Nations in the Queensland Murray-Darling Basin for many activities, including, but not limited to, recreation, storytelling, fishing, singing and ceremonies, as well as water for economic development.

Consultation with representatives from the Northern Basin Aboriginal Nations identified that the release of stored water from privately owned farm storages to receiving waters presents potential risks to downstream Aboriginal values and uses. The activity should be managed in a way that ensures the quality of water is suitable to support cultural, spiritual and ceremonial values and uses; as demonstrated by maintaining the current water quality of the receiving waters.

An Aboriginal Waterways Assessment will be independently undertaken for the waterways of the Lower Balonne, and for the waterways of the Upper Condamine and the Warrego, to assess the cultural health index of the respective waterways and to subsequently inform environmental watering planning under the Murray-Darling Basin Plan 2012. Section 3.1.1.1 of the Explanatory Guide to this Code of Practice summarises the work.

7. Using the Code of Practice

Best Management Practice for broadacre irrigation is currently represented by the *myBMP* program of Cotton Australia. The program is also applicable to other crops and shares similar modules with other agricultural BMP programs, such as Grains BMP (developed by Agforce, Fitzroy Basin Association and Department of Primary Industries and Agriculture).

This Code of practice has mirrored the structure of *myBMP* to make it easier for landholders to relate to their current practices; however compliance with *myBMP per se* is not required in order to comply with this Code of practice, which is a stand-alone document.

As such this Code of practice:

- *gives practical guidance* on how environmental best management practices can be achieved in the release of stored water
- *should be followed* unless there is an alternative course of action that achieves the same or a better environmental objective.

When using the Code, operators should tick each box (Section 8.1) if they comply and such compliance must be able to be supported by documentary evidence.

It should be noted that a laboratory based analysis of the quality of water in storage conducted shortly before release of the stored water (and with no potentially contaminating events in the interim) and showing no contamination above guideline levels, or no worse than the background receiving waters, will be taken as evidence of the success of control measures, without further need to show compliance with each control measure in this Code. This is taken as an appropriate alternative course of action (Refer to the alternative control measure listed under Performance Outcome 1.8).

Where the Code refers to legislation by date, it should be read as referring to any updates of that legislation applicable at the time of conducting the activity.

7.1. Performance outcomes

Performance outcomes are the end result that the operator needs to achieve to meet the 'general environmental duty' described under the *Environmental Protection Act 1994*. The outcomes may relate to any environmental value which may be affected by the release of stored water (values of air, water, land, or the acoustic environment and to the correct management of waste such that these values are protected). As noted, this Code only relates to protection of the values of water.

There is a single **performance outcome** in this Code of practice:

- ***There is no discharge to water of contaminants at a level which causes or is likely to cause material or serious environmental harm or create a nuisance from release of stored water to receiving waters.***

A number of sub-outcomes and control measures to achieve this overall performance outcome are specified in Section 8.

7.2. Control measures

There are a number of control measures provided which, if undertaken, will help to achieve the performance sub-outcomes and the overall outcome. Operators may choose to use control measures other than those provided. However, in such cases, the operators will **not** be able to rely on complying with this Code of practice as a defence if

they cause unlawful environmental harm. Operators may still rely upon the defence of complying with the general environmental duty, but will have to show how they met their general environmental duty another way.

The focus of the control measures is on best management practice related to all aspects of management of chemicals on farm, as this is considered the area of highest risk. Control measures have also been incorporated to address the issues of possible changes in water quality due to the length of time the water is stored, and erosion of channels or discharge locations. While some measures may not be specifically related to the release of stored water, good housekeeping across all aspects will minimise the possibility of contamination affecting stored water or the discharge channel.

7.3. Best practice

Best practice in broadacre irrigated cropping is equated with Level 2 compliance with the *myBMP* program operated by Cotton Australia. This Code includes relevant Level 2 control measures.

The relevant sections of *myBMP* presented in Section 8 represent current best practice with respect to the release of stored water. *myBMP* is occasionally updated to ensure it remains best practice. The Code may be amended if necessary (Section 5) but otherwise remains in force.

An operator can implement updated control measures contained within *myBMP* (which are not the same as those in the Code) and still comply with their environmental duty if they can show that the updated actions represent an alternative course of action that achieves the same or a better environmental objective.

8. Environmental management plan

The performance outcome, sub-outcomes and control measures listed in this Code of practice constitute an appropriate Environmental Management Plan (EMP). If an action is brought against an operator (landholder) related to environmental harm or depositing of a prescribed water contaminant, Section 493A (5) (a) and (b) of the *Environmental Protection Act 1994* determines the operator will be deemed to have complied with their general environmental duty if they are able to demonstrate compliance with this Code of practice (to the extent relevant).

Alternative EMP's may be developed by individual operators. However, in such cases, operators will **not** be able to rely on complying with this Code of practice as a defence if they cause unlawful environmental harm. Operators may still rely upon the defence of complying with the general environmental duty, but will have to show how they met their general environmental duty another way.

This EMP ensures:

- all potential environmental risks from the activity are identified and control measures are in place to prevent or minimise the potential for environmental harm
- operators, staff and contractors are trained and aware of their requirements of the *Environmental Protection Act 1994*
- reviews of environmental performance are undertaken periodically
- records of monitoring and incidents are kept.

To reiterate, **when using the Code, operators should tick each box if they comply and such compliance must be able to be supported by documentary evidence.**

Prior to conducting a release, the operator should notify the Water Management unit of the Department of Natural Resources and Mines regional business centre relevant to the region.

8.1. Performance outcome 1:

There is no discharge to water of contaminants at a level which causes or is likely to cause material or serious environmental harm or create a nuisance from release of stored water.

The quality of water in storage may be altered as a result of storage or of contamination from surrounding farming activities	Potential risks and impacts Stored water which contains prescribed contaminants may cause environmental harm if released to the aquatic ecosystem or may adversely affect other environmental values of the waterbody.
	Performance outcome 1.1 <i>A comprehensive farm map has been created and maintained</i> ✓ Suggested control measures <ul style="list-style-type: none">□ A detailed farm map(s) has been developed that shows:<ul style="list-style-type: none">□ North orientation arrow, accurate scale□ Location of property boundaries□ Cropped areas□ On-farm and neighbouring houses and buildings□ Neighbouring agricultural areas (e.g. crops, grazing, bees, dairy, tree crops)□ On-farm and neighbouring sensitive areas such as watercourses, bodies of water (including storages and intake / release channels) and areas of remnant vegetation□ Water management system (irrigation water supply, tailwater and stormwater systems with separation (if practiced) clearly identified)□ Aircraft and spray rig hazards e.g. powerlines Windssocks, weather stations and farm roads / tracks□ Chemical and fuel storage□ The farm map is kept where employees and applicators can see it and a copy is provided to all applicators.□ Contact details (phone, UHF) for the farm, relevant employees, applicators, neighbours and government agencies (for example, the Queensland Government Department of Environment and Heritage Protection and Department of Natural Resources and Mines and the Australian Government Department of Environment and Energy) are listed and kept with the farm maps.

Performance outcome 1.2

All necessary records relating to management of chemicals are kept up to date

- ✓ Suggested control measures
 - Records are kept of all staff accreditations, induction and training.
 - Risk assessments have been conducted for transportation, storage and handling of hazardous substances.
 - Emergency procedures relating to farm chemical use, transport, storage and disposal are developed and recorded.
 - A Pesticide Application Management Plan or equivalent is prepared which covers the use of all chemicals.
 - Safety Data Sheets (SDS) are available to workers for all chemical products used on farm.
 - Copies of Licences, Work Cover status and insurance status for applicators are held by the landholder.
 - All label requirements for record keeping are complied with.
 - When chemicals are applied by a licensed spray contractor, copies of all application records are kept in accordance with *Queensland Agricultural Chemicals Distribution Control Act 1966*.
 - Records indicate 'no-spray zones' have been complied with.
 - In the event of a chemical application or other event which may affect the quality of stored water, it is recorded such that it is readily apparent when deciding on the appropriateness of release under this Code of practice.

Performance outcome 1.3

All chemicals are transported, stored, handled and disposed of in an appropriate manner

- ✓ Suggested control measures
 - All farm chemicals are stored in their original, labelled containers.
 - The location of the chemical storage and mixing sites is appropriate, not within close proximity of a sensitive area and flooding immunity is considered.
 - The chemical storage area is bunded in accordance with AS2507–1998 *The storage and handling of agricultural and veterinary chemicals* and to satisfy the Work requirements of the *Health and Safety Regulation 2011*.
 - Emergency equipment for use in the event of a spill or fire is kept at the storage facility.
 - Wherever practical, only minimum quantities are stored on farm.
 - A register of hazardous chemicals is kept.

	<ul style="list-style-type: none"> □ Chemicals for use are transported: <ul style="list-style-type: none"> □ securely in the back of an open vehicle, □ in containers that have been checked for leaks and breakages before loading. □ Only legal quantities of chemicals are transported by farm vehicles. □ Induction and training of staff in the safe transport and handling of farm chemicals and emergency procedures is recorded in the training register. □ Petrochemical storage tanks used at or near bodies of water are set back where possible, bunded as required by AS 1940 and potential spills are prevented from reaching the water. □ A spill kit is available and accessible. □ The mixing site is able to contain spills and run off. Label recommendations for the correct mixing order are always followed. □ Suitable equipment is available to accurately measure quantities of chemicals. □ All containers are triple rinsed during mixing. The rinsate is added to the spray tank. □ Out of date, or products that are no longer registered are disposed of using Chemclear®, ChemCollect® or through a hazardous waste disposal centre. □ Disposal of empty chemical containers is managed responsibly (e.g. drumMUSTER® program). □ Empty containers are stored securely prior to disposal □ Chemicals are purchased in recyclable or returnable containers where available. □ Intermediate Bulk Containers (IBC) are recycled through drumMUSTER® or returned to the reseller. □ Users of agricultural chemicals are to use registered products and follow label instructions in accordance with the <i>Chemical usage (Agricultural and Veterinary) Control Act 1988</i>.
	<p>Performance outcome 1.4 <i>Careful consideration is given to chemical selection and application</i></p> <ul style="list-style-type: none"> ✓ Suggested control measures <ul style="list-style-type: none"> □ Only registered products or products with current permits are selected and used on farms. □ All product selections take into account potential for off-target damage (e.g. formulation type, adjuvant, odour, toxicity, effect on beneficial insects including bees). □ Workers are instructed and trained in the safe use of chemicals (e.g. transport, application, mixing and loading, emergency procedures). In Queensland - Chemical users applying chemicals on properties other than their own have chemical user accreditation.

	<ul style="list-style-type: none"> <input type="checkbox"/> A pre-season discussion is held with all aerial and ground-rig spray applicators and documented (e.g. Pesticide Application Management Plan). <input type="checkbox"/> Spray applicators comply with all label requirements. <input type="checkbox"/> Spray applicators maintain and supply copies of all application records that are legally required by state legislation. <input type="checkbox"/> The correct application equipment and techniques are used (e.g. windspeed / direction, temperature, machine speed, water volumes, nozzles, pressures). <input type="checkbox"/> A process for selecting appropriate application parameters (speed, volumes, nozzles etc.) is agreed with the applicator pre-season. <input type="checkbox"/> Spray applicators are provided a current farm map and contact details. <input type="checkbox"/> Chemical labels that state 'spray drift restraints and mandatory no-spray zones' are adhered to and records of no-spray compliance must be kept (e.g. map or spray record). <input type="checkbox"/> The grower ensures chemical application takes place only during appropriate weather conditions (i.e. field specific weather parameters are established) for the application method as stated on the label. <input type="checkbox"/> Weather forecasts are used where possible to determine appropriate application windows. <input type="checkbox"/> Weather conditions are monitored and recorded at the site of application at the start, during and completion of each spray job. <input type="checkbox"/> Regular maintenance of weather monitoring equipment. <input type="checkbox"/> All chemical application orders are provided in writing to the spray applicator (ground and aerial). <input type="checkbox"/> Unobstructed access to chemical and to clean water is provided to spray applicators where required. <input type="checkbox"/> All persons applying chemicals are suitably qualified according to the legislative requirements. <input type="checkbox"/> Spray applicators provide written confirmation of job completed (e.g. chemical application record).
	<p>Performance outcome 1.5 <i>Plans are developed and implemented to manage tailwater and stormwater on farm</i></p> <ul style="list-style-type: none"> ✓ Suggested control measures <ul style="list-style-type: none"> <input type="checkbox"/> All irrigation tailwater is contained either on-farm or in a shared group water supply scheme but preferably separated from the stored water which may later be released under this Code. <input type="checkbox"/> The first flush of stormwater runoff from treated areas is retained on-farm but preferably separated from the stored water which may later be released under this Code. <input type="checkbox"/> An effective and documented stormwater management

	<p>system is in place.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Any planned new storages to contain tailwater and/or stormwater complies with legislation. <input type="checkbox"/> Identify erodible sites such as saline areas and sodic scalds and manage to avoid impacts such as sediment and salt movement into waterways. <input type="checkbox"/> Irrigations are managed to ensure that no excess tail water is generated. <input type="checkbox"/> Where possible vegetative barriers at least 6 metres wide are maintained between cropping lands and sensitive areas. <input type="checkbox"/> Irrigation discharge points should direct tailwater away from sensitive areas.
	<p>Performance outcome 1.6 <i>Practices are used to manage storage and discharge systems to prevent or minimise environmental harm</i></p> <ul style="list-style-type: none"> ✓ Suggested control measures <ul style="list-style-type: none"> <input type="checkbox"/> Storages and discharge channels (new and reconfigured) are located, designed and constructed by suitably qualified persons in order to minimise erosion, evaporation and seepage losses. <input type="checkbox"/> Any planned new infrastructure which effects flow of water to or from a river complies with legislation (including waterway barrier works approval or riverine protection permits if applicable). <input type="checkbox"/> Regular monitoring and maintenance of storages and channels for erosion. <input type="checkbox"/> Areas of erosion are repaired prior to the next release event and in a manner which reduces the likelihood of future erosion. <input type="checkbox"/> Regular pump maintenance is undertaken. <input type="checkbox"/> Storages do not receive solid or liquid waste from any aspect of farming operations. <input type="checkbox"/> Any water storage which was used as a cropping area within the previous 12 months must undertake water quality testing for contaminants and show satisfactory results prior to being eligible to release water under this Code.
	<p>Performance outcome 1.7 <i>Riverbanks and waterways in the location of the discharge point are stabilised (if necessary) to prevent and reduce erosion caused by the discharge</i></p> <ul style="list-style-type: none"> ✓ Suggested control measures <ul style="list-style-type: none"> <input type="checkbox"/> Obtain technical advice and relevant approvals before commencing any works in-stream or along banks <input type="checkbox"/> Identify and manage bank instability and erosion at the discharge location and along nearby riverbanks, including by construction of approved bank stabilisation works if necessary.

	<ul style="list-style-type: none"> □ Native vegetation is retained (minimum of 30 metres along top of bank) and protected in riparian areas near the discharge location and natural regeneration is actively promoted. □ Leave native vegetation, logs, woody debris and rocks along banks to provide bank stability. □ Stock access to and in the proximity of the discharge location is managed to minimise bank instability, loss of groundcover, damage to native vegetation and promote regeneration. □ All riparian land is identified on the farm map as a sensitive area.
	<p>Performance outcome 1.8 <i>There will be no release of stored water containing contaminants at a level which may lead to material or serious environmental harm or create a nuisance</i></p> <ul style="list-style-type: none"> ✓ Suggested control measures <ul style="list-style-type: none"> □ Upon becoming aware of a possible requirement to release stored water to a receiving environment, the operator will review all relevant documents related to compliance with this Code and consider the likelihood that the stored water has been contaminated by farming activities, stratification or erosion. Compliance with this Code of practice will result in a low level of risk. □ In undertaking the assessment of the suitability of the storage water for release, the operator should consider any water quality monitoring data available for the storage and the receiving watercourse. □ If no recent analytical data is available at the time the release is desired, the operator should visually inspect the storage for evidence of healthy aquatic life including algal or macrophyte growth, fish or macroinvertebrates. Visually apparent healthy aquatic life reduces the risk that the water is significantly contaminated. The converse is also true. □ Physical evidence of contamination such as slicks, discolouration, reduced clarity and odour should be included within the inspection. □ If the water in storage proposed for release received tailwater or field derived stormwater runoff, the quality of the water must be tested for contaminants by laboratory based analytical methods or ‘quick test’ sticks (the latter for at least atrazine, diuron and metolachor – if a test is available). A release to receiving waters may be conducted if: <ol style="list-style-type: none"> (1) the results show no contamination above the water quality objectives for the receiving waters (to protect the environmental values); or (2) the results of a particular indicator do not exceed the ambient levels of the receiving waters.

- Note the laboratory monitoring of the initial trials of the release of stored water from farm storages to receiving waters will be covered by an ambient monitoring program detailed in Appendix 2.
- In the period October to May, if the storage is > 4m deep and water has been undisturbed for at least 4 months, the temperature difference between top and bottom waters should be measured. If a difference of 5°C or more is evident, the water should be circulated (mixed) prior to release to the environment (e.g. by moving to another storage cell or by passing the water through re-aeration structures).
- The depth of water in storage should be noted and included within the assessment of the suitability of the storage water for release. Shallow water (less than 1m deep on average when release is requested) is less likely to be suited for release.
- Water quality monitoring samples should be collected in accordance with the *Queensland Monitoring and Sampling Manual 2009*, as amended, and any specific requirements of the laboratory conducting the analysis.
- Water quality monitoring samples should be analysed at a National Association of Testing Authorities laboratory that has been accredited to conduct the relevant analyses.
- Outcomes of the assessment of the suitability of the storage water for release will be documented and reported to the body requesting the release and to DEHP.
- If any observation suggests the release is causing or may cause environmental harm, the release must be stopped and DEHP must be notified in accordance with Section 320A of the *Environmental Protection Act 1994*.

Alternative control measure to achieve performance outcome:

- ✓ Suggested control measure
 - Laboratory based analysis of the quality of water in storage and in the receiving waters conducted shortly before release of the stored water (and with no potentially contaminating events in the interim) will be taken as evidence of the success of control measures, without further need to show compliance with each control measure in this Code of practice, if:
 - (1) the results show no contamination above the water quality objectives for the receiving waters (to protect the environmental values); or
 - (2) the results of a particular indicator do not exceed the ambient water quality of the receiving waters.

Note: Erosion of riverbanks and waterways in the location of the discharge point must be managed in accordance with Performance Outcome 1.7.

Appendix 1: General obligations under the *Environmental Protection Act 1994*

General environmental duty

The *Environmental Protection Act 1994* section 319 states that we all have a general environmental duty. This means that we are all responsible for the actions we take that affect the environment. We must not carry out any activity that causes or is likely to cause environmental harm unless we take all reasonable and practicable measures to prevent or minimise the harm. To decide what meets your general environmental duty, you need to think about these issues:

- the nature of the harm or potential harm,
- the sensitivity of the receiving environment,
- the current state of technical knowledge for the activity,
- the likelihood of successful application of the different measures to prevent or minimise environmental harm that might be taken, and
- the financial implications of the different measures as they would relate to the type of activity.

It is not an offence not to comply with the general environmental duty however maintaining your general environmental duty is a defence against the following acts:

- (a) an act that causes serious or material environmental harm or an environmental nuisance,
- (b) an act that contravenes a noise standard,
- (c) a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG.

Duty to notify

The duty to notify (section 320A of the *Environmental Protection Act 1994*) requires a person or company to give notice where serious or material environmental harm is caused or threatened to occur. Notice must be given of the event, its nature and the circumstances in which the event happened. Notification can be verbal, written or by public notice depending on who is notifying and being notified.

For more information on the duty to notify requirements refer to the guideline '*The duty to notify of environmental harm*' (EM467)¹.

¹ Available at www.qld.gov.au, using the publication number EM467 as a search term.

Relevant offences under the *Environmental Protection Act 1994*

1. Causing serious or material environmental harm (sections 437-439)

Material environmental harm is environmental harm that is not trivial or negligible in nature. It may be great in extent or context or it may cause actual or potential loss or damage to property. The difference between material and serious harm relates to the costs of damages or the costs required to either prevent or minimise the harm or to rehabilitate the environment. Serious environmental harm may have irreversible or widespread effects or it may be caused in an area of high conservation significance. Serious or material environmental harm excludes environmental nuisance.

2. Causing environmental nuisance (section 440)

Environmental nuisance is unreasonable interference with an environmental value caused by aerosols, fumes, light, noise, odour, particles or smoke. It may also include an unhealthy, offensive or unsightly condition because of contamination.

3. Depositing a prescribed water contaminant in waters (section 440ZG)

Prescribed contaminants include a wide variety of contaminants listed in Schedule 9 of the *Environmental Protection Regulation 2008*. It is your responsibility to ensure that prescribed contaminants are not left in a place where they may or do enter a waterway, the ocean or a stormwater drain. This includes making sure that stormwater falling on or running across your site does not leave the site contaminated. Where stormwater contamination occurs you must ensure that it is treated to remove contaminants. You should also consider where and how you store material used in your processes onsite to reduce the chance of water contamination.

4. Placing a contaminant where environmental harm or nuisance may be caused (section 443).

Relevant offences under the *Waste Reduction and Recycling Act 2011*

1. Littering (section 103)

Litter is any domestic or commercial waste and any material a person might reasonably believe is refuse, debris or rubbish. Litter can be almost any material that is disposed of incorrectly. Litter includes cigarette butts and drink bottles dropped on the ground, fast food wrappers thrown out of the car window, poorly secured material from a trailer or grass clippings swept into the gutter. Litter can also be an abandoned vehicle. However, litter does not include any gas, dust, smoke or material emitted or produced during, or because of, the normal operations of a building, manufacturing, mining or primary industry.

2. Illegal dumping of waste (section 104)

Illegal dumping is the dumping of large volumes of litter (200 litres or more) at a place.

Appendix 2: Description of monitoring programs to be conducted during initial releases of water from privately owned farm storages to receiving waters

Ambient monitoring program

When water is actually released, an ambient monitoring program must be undertaken as part of initial trials of the procedure. Design of the program must be finalised prior to the first release event but it may be based on the following:

- Water samples should be collected from the discharge channel immediately prior to discharge, from the receiving watercourse approximately 500m upstream and downstream of the discharge point, and from the watercourse approximately 5km downstream from the discharge point.
- Water quality sampling should be conducted prior to the event (if possible and include samples from within the water storage), shortly after commencement of release, during release (assuming release occurs over several days) and shortly (at least 5 days but no more than 14 days) after the release ceases.
- Analytes should include the standard suite of physico-chemical parameters and the range of potential chemicals and contaminants sampled by the Queensland Murray-Darling Committee to support initial development of this Code.

Recommended analytes include:

- Agricultural Water Suite: Major elements, anions, pH, Electrical Conductivity, Alkalinity, Hardness, SAR,
- Water: Metals ultra-trace total ICPMS after HNO₃ digest,
- Water: Metals ultra-trace dissolved ICPMS,
- Water: Nutrients Kjeldahl (TKN TKP),
- Water: Nutrients dissolved (NH₄ NO_x FRP),
- Water: Chlorophyll a spectrometric,
- Low level pesticide suite, and¹
- Low level herbicide suite.¹

¹ Note: Check with the laboratory that the pesticide and herbicide suite selected for analysis includes the chemicals in use within the vicinity of the storage.

Aboriginal Waterways Assessment

This section is included for information only.

An Aboriginal Waterways Assessment will be undertaken for the waterways of the Lower Balonne, and for the waterways of the Upper Condamine and the Warrego, during 2017 to assess the cultural health index of the respective waterways and subsequently inform environmental watering planning under the Murray-Darling Basin Plan 2012. Section 3.1.1.1 of the Explanatory Guide to this Code of Practice summarises the work.

Appendix 3: Prescribed water contaminants as listed in Schedule 9 of the *Environmental Protection Regulation 2008*

1. A chemical, or chemical waste containing a chemical.
Examples—
 - biocide, including herbicide, fungicide and pesticide
 - chemical that causes biochemical or chemical oxygen demand
 - chemical toxicant for which guidelines are prescribed in the document 'Australian and New Zealand guidelines for fresh and marine water quality'
 - degreasing agent
2. A gas other than oxygen.
3. A liquid containing suspended or dissolved solids.
4. A liquid that has a temperature different by more than 2°C from ambient water temperature.
5. Animal matter, including dead animals, animal remains and animal excreta, and water used to clean animals, animal enclosures or vehicles used for transporting animals.
6. Ashes, clay, gravel, sediment, stones and similar organic or inorganic matter.
7. A substance that has a pH outside the range 6.5 to 8.5.
8. Building and construction materials, including bitumen, brick, cement, concrete and plaster.
9. Building, construction and demolition waste, including bitumen, brick, concrete cuttings, plaster and waste water generated by building, construction or demolition.
10. Clinical waste.
11. Glass, metal parts, paper, piping, plastic and scrap metal.
12. Industrial waste.
13. Oil, including, for example, petroleum or vegetable based oil.
14. Paint, paint scrapings or residues, paint sludge, water used for diluting paint or washing painting utensils, and waste from paint stripping.
15. Plant matter, including, for example, bark, lawn clippings, leaves, mulch, pruning waste, sawdust, shavings, woodchip and other waste from forest products.
16. Putrescible waste, including, for example, food scraps.
17. Sewage and sewage residues, whether treated or untreated, and any other matter containing faecal coliforms or faecal streptococci, including, for example, waste water pumped out from a septic tank.
18. Vehicles and components of vehicles, including, for example, batteries and tyres.
19. Waste and waste water, generated from indoor cleaning, including, for example, waste from carpet or upholstery cleaning and steam cleaning.
20. Waste and waste water, generated from outdoor cleaning, including, for example, waste generated from high pressure water blasting of commercial or industrial premises, fuel dispensing areas, plant or equipment, roofs, streets, vehicles and wharves.
21. Waste generated from repairing or servicing motor vehicles, including, for example, engine coolant, grease, lubricants and oil.
22. Waste water, including backwash from swimming pools, condensate from compressors, water from air-conditioning or cooling systems and waste water from grease traps.