



**WorleyParsons**

resources & energy



STATE WATER CORPORATION

CHAFFEY DAM AUGMENTATION AND SAFETY UPGRADE

ENVIRONMENTAL IMPACT STATEMENT

STATE SIGNIFICANT INFRASTRUCTURE

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# Appendix 14: Environmental Risk Analysis

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
Soil and Water	Significant impacts through inundation of upstream land and tributaries	Moderate	Likely	Extreme	Review and continued implementation of Chaffey Dam Foreshore Management Plan.	Moderate	High
Soil and Water	Erosion and sedimentation of reservoir (during construction)	Moderate	Likely	High	A Sediment and Erosion Control Plan will be developed and implemented. Existing cleared and sealed areas, including existing roads and bridges, will be utilised as far practicable during construction. Off road driving will be minimised as far as practicable and will be limited to within designated works areas. Topsoil will be separated from subsoil during excavation and replaced as the top soil layer upon backfilling or reused elsewhere for rehabilitation. Excavations will be backfilled as soon as practicable. The extent of soil disturbance will be minimised and rehabilitation will be undertaken as soon as practicable following completion of works at each location. Rehabilitation will incorporate revegetation with native species of local provenance to stabilise soils and reduce erosion.	Unlikely	Moderate
Soil and Water	Construction waste entering reservoir or downstream environment	Minor	Unlikely	Low	All concrete pours and bitumen use will be appropriately supervised. Placement of bitumen products will be restricted to periods where there is expected to be at least two days of dry weather after their application.	Rare	Low
Soil and Water	Flood flows resulting in damage to structures or distribution of construction material downstream	Moderate	Unlikely	Moderate	If the reservoir is at or near FSL at the commencement of construction, the reservoir will be temporarily lowered to 2 m below FSL to provide construction access and flood protection, in accordance with any NSW Office of Water requirements	Rare	Moderate
Soil and Water	Sedimentation of reservoir (during operation)	Minor	Moderate	Moderate	Review and continued implementation of Chaffey Dam Foreshore Management Plan.	Unlikely	Low
Soil and Water	Stratification resulting in cold water releases (note: multi-level offtake to be raised relative to increased FSL as part of project, not as a mitigation measure)	Moderate	Unlikely	Moderate	Selective withdrawal of water from the hypolimnion will be carried out to maintain or improve the quality of downstream water releases.	Unlikely	Moderate
Soil and Water	Changes to downstream flows (note: alterations to morning glory spillway have been designed to achieve a stage-discharge relationship which is a close match to the existing)	Moderate	Unlikely	Moderate	None	Unlikely	Moderate
Soil and Water	Geomorphic changes to downstream environment (note: alterations to morning glory spillway have been designed to achieve a stage-discharge relationship which is a close match to the existing)	Moderate	Unlikely	Moderate	None	Unlikely	Moderate
Soil and Water	Increase in return flows following application of irrigation water (note: operational changes only in response to Peel Valley Water Sharing plan)	Moderate	Unlikely	Moderate	None	Unlikely	Moderate
Soil and Water	Significant increase in downstream flood flows during extreme events (note: modification of auxiliary spillway as part of project, not as mitigation measure)	Moderate	Unlikely	Moderate	None	Unlikely	Moderate
Soil and Water	Quality and/or quantity impacts to groundwater	Moderate	Unlikely	Moderate	Existing cleared and sealed areas, including existing roads and bridges, will be utilised as far practicable during construction. Off road driving will be minimised as far as practicable and will be limited to within designated works areas.	Unlikely	Moderate

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
Soil and Water	Changes to existing environment from climate change (note: proposed capacity considers climate change)	Moderate	Moderate	High	None	Unlikely	Moderate
Biodiversity	Significant impacts to threatened species and communities	Major	Moderate	Extreme	<p>Further surveys will be carried out in summer to determine the presence or absence of Queensland Bluegrass (<i>Dichanthium setosum</i>) within the Project Site to accurately determine the potential for a significant impact to this species.</p> <p>The design of the raised multi-level off-take tower should enable adequate management of cold water pollution and algal bloom impacts (i.e. allow for releases of water from various depths independently and/or concurrently to allow mixing of water if required to mitigate cold water pollution).</p> <p>A Booroolong Frog Management Plan to be developed and implemented for the Booroolong Frog population on the Peel River that will include provision for:</p> <ul style="list-style-type: none"> <li>• A pre-construction monitoring program which includes frog surveys in summer 2012 / 2013 to ascertain the current numbers of frogs and to inform the relocation strategy;</li> <li>• Depending on the findings of the proposed Summer Survey and if considered appropriate and necessary, relocation of juvenile frogs within the new FSL to suitable habitat upstream on the Peel River, or elsewhere in the catchment to be decided in consultation with Namoi CMA and Philip Spark (or other suitable frog expert);</li> <li>• The relocation strategy will aim to sustain a viable local population. If at any time, this is unlikely to be met, alternative strategies will be developed;</li> <li>• Remediation and threat mitigation as required in receiving sites (e.g. stock exclusion, weed removal, removal of exotic shading vegetation, protection from fossicking, removal of Carp); and</li> <li>• Post-construction monitoring for a minimum of two years to monitor the success of the Management Plan. This will be dependent on the rate of inundation and consultation with the relevant parties (e.g. Namoi CMA).</li> </ul> <p>A Vegetation Management Plan will be developed for the Project including but not limited to the following outcomes:</p> <ul style="list-style-type: none"> <li>• The control of noxious weeds recorded on the site prior to works commencing;</li> <li>• The management of Coolatai Grass around the dam wall and planted wildlife corridor;</li> <li>• Preventative measures for the spread or introduction of weeds with the aim of ensuring no weeds are spread or introduced as a result of the Project. Any increase in weed infestations should be managed to eliminate or reduce weed infestation;</li> <li>• Provisions requiring weed control measures employing chemicals to be conducted in a manner that does not impact on water quality within the reservoir;</li> <li>• Laydown sites for excavated spoil, equipment and construction materials will be weed-free or treated for weeds;</li> <li>• Sediment control materials should be weed free such as weed free hay bales or geotextiles;</li> <li>• Any imported materials such as sand and gravel will be sourced from sites which do not show evidence of noxious weeds or diseases that may be harmful to native vegetation. If any imported materials result in the occurrence of weeds, measures will be implemented to eliminate weeds before they have the opportunity to spread; and</li> <li>• Monitoring of measures and ongoing adaptive management to control weeds throughout construction and operation of the Project.</li> </ul> <p>A Water Release Management Plan will be prepared and implemented if water releases are required to reduce the reservoir level during construction. The Plan will be developed in consultation with relevant stakeholders including State Water, NSW Office of Water and DPI (Fisheries). The Plan will include consideration of the following:</p> <ul style="list-style-type: none"> <li>• Where possible use water releases will be undertaken as currently required under the Water Sharing Plan for the Peel Valley Regulated, Unregulated, Alluvium and Fractured Rock Water Sources 2010; and</li> <li>• Adequate monitoring of water quality (temperature, algal blooms) should be undertaken to ensure water quality impacts due to release of water are avoided or minimised. The multi-level intake should be used in an effective manner to minimise potential water quality impacts; and</li> </ul> <p>Laydown areas and stockpile sites should be located at least 40 m from any waterways where possible and should be adequately protected to avoid or minimise any potential pollution of waterways through adequate erosion and sediment controls.</p>	Unlikely	High
Biodiversity	Cold water pollution (note: multi-level offtake to be raised relative to increased FSL as part of project, not as a mitigation measure)	Moderate	Unlikely	Moderate		Unlikely	Moderate
Biodiversity	Loss of native vegetation	Moderate	Likely	High		Unlikely	Moderate
Biodiversity	Loss of habitat	Moderate	Likely	High		Unlikely	Moderate

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
Biodiversity	Decreased water quality from vegetation breakdown	Moderate	Likely	High	<p>Protocols will be developed to ensure hydrocarbon and chemical spills are contained and treated immediately should they occur. Protocols will aim to ensure no soil or water contamination occurs, with any contaminated material removed and appropriately treated or disposed.</p> <p>Should large woody debris need to be removed for any construction activities the following will be implemented:</p> <ul style="list-style-type: none"> <li>• Lopping (trimming) will be considered as a first option;</li> <li>• Instream realignment will be considered as the next option;</li> <li>• If realignment is unfeasible, relocation within the river channel is preferable to removal; and</li> <li>• Removal should be considered as a last resort.</li> </ul> <p>The existing Chaffey Dam – Variable Offtake Management Protocol will be reviewed and revised (as relevant) with the aim of avoiding or minimising cold water pollution. The Protocol should be prepared in accordance with the guidelines for managing cold water releases from high priority dams (NOW 2011) and should consider conflicting algal management. The water to be released should match as closely as possible the natural temperature regime, especially during the spring, summer and autumn periods. The natural seasonal temperature regime should be determined through effective monitoring of upstream and downstream reference sites.</p> <p>The release of water during operation will be undertaken in accordance with the Water Sharing Plan for the Peel Valley Regulated, Unregulated, Alluvium and Fractured Rock Water Sources 2010. An adequate operating protocol for the use of the ECA will be developed to provide the best ecological outcome. The operating protocol should consider the Environmental Water Delivery: Namoi River (Barma Water Resources et al. 2012) which provides information on the environmental assets and potential options for environmental water use in the Namoi catchment including at Chaffey Dam. It should also include monitoring requirements, as described in Barma Water Resources et al. (2012), to assess the success of the releases. The operating protocol should be developed in consultation with all relevant stakeholders including but not limited to State Water, NSW Office of Water and DPI (Fisheries).</p> <p>The riparian zone of the Peel River should be replanted at the new FSL along upstream waterways for a minimum of 10 m from the new FSL and along the shoreline of the reservoir where practicable, particularly in areas identified as having a high risk of erosion. Revegetation should be undertaken using natives species of local provenance.</p> <p>The impact of water releases on temperatures downstream will be monitored through the selection of appropriately located downstream sites and comparisons with reference locations.</p> <p>Works should be staged so that construction activities that need to be undertaken within waterways (e.g. bridge construction) are undertaken during low reservoir levels.</p>	Unlikely	Moderate
Aboriginal Heritage	Significant impacts to known Aboriginal heritage items	Moderate	Almost Certain	Extreme	<p>Surface salvage and collection or relocation of all known Aboriginal heritage sites to be directly impacted will be carried out</p> <p>Subsurface archaeological testing will be conducted in all areas of PAD to be directly impacted.</p> <p>Known Aboriginal heritage sites adjacent to construction footprints will be fenced off during all construction works. Unauthorised access to these areas by personnel and equipment will be prohibited.</p> <p>Consultation with Aboriginal stakeholders in accordance with relevant guidelines.</p>	Unlikely	Moderate
Aboriginal Heritage	Significant impacts to currently unknown Aboriginal heritage items	Moderate	Moderate	High	<p>Unanticipated Discovery Protocol will be implemented where any suspected Aboriginal objects or suspected human remains are uncovered during construction</p>	Rare	Moderate
Aboriginal Heritage	Inadequate consultation with Aboriginal stakeholders	Moderate	Unlikely	Moderate	<p>Consultation with Aboriginal stakeholders in accordance with relevant guidelines.</p>	Rare	Moderate
European Heritage	Significant impacts to listed European heritage items	Moderate	Moderate	High	<p>The Iron Footbridge will be carefully dismantled, transported and re-erected in a location within the vicinity of its present location that aids in the interpretation of the footbridge with regard to its connection to the Bowling Alley Point settlement.</p> <p>Interpretative signage will be installed at the new location of the Iron Footbridge to document its history, including construction methods, original location and the role and function it had in serving the former Bowling Alley Point gold mining settlement. The importance of its historical, social, cultural and aesthetic significance to the current and future residents and to visitors should also be documented on the signage.</p> <p>The Contractor's CEMP will include measures to minimise visual impacts to the Bowling Alley Point School and Uniting Church during road and bridge construction activities, such as dust suppression, maintenance of tidy construction areas and the use of hoardings.</p>	Rare	Moderate

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
Traffic and Transport	Construction vehicles exceed capacity of local road network	Minor	Unlikely	Low	A Construction Traffic Management Plan will be developed and implemented for all Project construction activities. Works areas will be designed to allow for all vehicles to enter the works areas, manoeuvre internally and exit the works areas in a forward direction. All parking will be accommodated on site within the designated works area.	Rare	Low
Traffic and Transport	Operational vehicles exceed capacity of local road network	Minor	Rare	Low	None	Rare	Low
Traffic and Transport	Road closures during realignment of roads	Minor	Likely	High	A Construction Traffic Management Plan will be developed and implemented for all Project construction activities.	Unlikely	Low
Traffic and Transport	Loss of access for residents and recreational users	Moderate	Unlikely	Moderate	A Construction Traffic Management Plan will be developed and implemented for all Project construction activities.	Rare	Moderate
Noise and Vibration	Noise impacts to sensitive receivers	Minor	Unlikely	Low	<p>All work will be carried out within the following hours:</p> <ul style="list-style-type: none"> <li>Monday to Friday 7:00am to 6:00pm;</li> <li>Saturday 8:00am to 1:00pm;</li> <li>Blasting Monday to Friday 9:00am to 5:00pm and Saturday 9:00am to 1:00pm only; and</li> <li>No work on Sundays or public holidays.</li> </ul> <p>Residents adjacent to works areas will be informed prior to and during construction, of the nature, duration and expected overall noise levels of construction activities. Relevant contact details for site personnel will also be provided.</p> <p>Simultaneous operation of noisy plant will be avoided wherever practicable.</p> <p>Maintenance work on construction plant and vehicles will be carried out away from identified sensitive receivers and confined to standard daytime construction hours, wherever practicable.</p> <p>Wherever practicable, noisy equipment will be:</p> <ul style="list-style-type: none"> <li>Positioned behind structures that act as barriers to identified sensitive receivers;</li> <li>Positioned at the greatest distance from identified sensitive receivers; and / or</li> <li>Oriented to directed noise emissions away from identified sensitive receivers.</li> </ul> <p>All vehicles and equipment will be regularly serviced, maintained in proper working order and turned off when not in use.</p> <p>"Quiet" practices will be employed wherever practicable when operating equipment.</p> <p>An effective Complaints Handling System will be developed and implemented throughout construction.</p>	Rare	Low
Noise and Vibration	Vibration impacts to sensitive receivers	Minor	Unlikely	Low	<p>Vibration monitoring will be carried out at the nearest sensitive receiver on commencement of significant construction activities, as follows:</p> <ul style="list-style-type: none"> <li>In the event that construction vibration is found to be significantly below construction vibration criteria, no subsequent monitoring of that activity is required.</li> <li>If monitored vibration levels are considered to be high-risk or close to the vibration criteria, unattended vibration monitoring will be carried out on a continuous basis at the nearest vibration sensitive receiver.</li> </ul> <p>Any blasting required will be of similar to blast designs and Maximum Instantaneous Charge (MIC) (i.e. less than 209 kg) carried out during construction of the existing auxiliary spillway.</p> <p>Monitoring will be carried out for any blasting required to ensure compliance with relevant criteria.</p>	Rare	Low

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
Air Quality	Dust impacts to sensitive receivers	Minor	Moderate	Moderate	<p>Residents adjacent to works areas will be informed prior to and during construction, of the nature, duration, expected overall dust levels and relevant contact details for site personnel.</p> <p>An effective Complaints Handling System will be developed and implemented throughout construction.</p> <p>Distance travelled on unsealed roads will be minimised by taking the most direct route to the destination.</p> <p>Surface drainage will be optimised, particularly at intersections.</p> <p>Vehicle speeds on unsealed roads within designated works areas will be limited to 40 km/hour or less.</p> <p>Larger trucks will be utilised for material transport to minimise the required number of trips, where possible.</p> <p>Unsealed roads, other unsealed surfaces, dry, sandy materials and stockpiles (as relevant) within designated works areas will be watered, likely using water carts, when visible dust emissions can be observed travelling offsite (note it is important to not allow unsealed roads to become saturated as this will increase emissions once they dry out).</p> <p>The extent of unsealed areas will be minimised by only clearing or unsealing areas required for the works and progressively rehabilitating disturbed areas as soon as possible after works are completed.</p> <p>Stockpiles will be stabilised (e.g. by watering, covering or revegetating, as practical) and, wherever practicable, shielded from the prevailing wind using wind breaks or by positioning them in sheltered areas, screened from the nearest sensitive receivers by topography or existing trees.</p> <p>Dump heights for the unloading and loading of soils will be minimised as far as practicable, particularly when dry, sandy materials are being handled.</p> <p>Construction activities will cease or be modified on dry windy days, when significant visible dust emissions can be observed travelling offsite towards nearby sensitive receptors.</p> <p>The Contractor will include in its CEMP, a copy of the modified version of the Beaufort Wind Scale, provided in Table 16 of Appendix 13, which is an empirical measure that relates wind speed to observed conditions. This table should be used as a practical guide for the need to implement dust control measures.</p>	Unlikely	Low
Visual Amenity	Significant visual impacts to residents	Minor	Unlikely	Low	<p>Trimmed and cleared vegetation should be spread over construction areas that are above the new FSL during rehabilitation to assist in stabilisation and revegetation of the area and to minimise visual impacts.</p> <p>The extent of soil disturbance will be minimised and rehabilitation will be undertaken as soon as practicable following completion of works at each location.</p> <p>Rehabilitation will incorporate revegetation with native species of local provenance to stabilise soils and reduce erosion.</p> <p>The Contractor will maintain the works areas in a clean and tidy fashion</p> <p>Sediment and erosion control devices will be checked regularly, including after heavy rainfall and cleaned or replaced as required</p>	Rare	Low
Visual Amenity	Visual impacts to the general public	Insignificant	Unlikely	Low	<p>Trimmed and cleared vegetation should be spread over construction areas that are above the new FSL during rehabilitation to assist in stabilisation and revegetation of the area and to minimise visual impacts.</p> <p>The extent of soil disturbance will be minimised and rehabilitation will be undertaken as soon as practicable following completion of works at each location.</p> <p>Rehabilitation will incorporate revegetation with native species of local provenance to stabilise soils and reduce erosion.</p> <p>The Contractor will maintain the works areas in a clean and tidy fashion</p> <p>Sediment and erosion control devices will be checked regularly, including after heavy rainfall and cleaned or replaced as required</p>	Rare	Low

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
Land Use	Significant change to land uses	Moderate	Unlikely	Moderate	<p>An Interpretation Strategy will be developed for the Dulegal Arboretum</p> <p>The memorial plaque present the Dulegal Arboretum will be relocated to above the new FSL</p> <p>State Water will acquire all private land within the new FSL</p> <p>Carry out a features survey to identify features to be avoided during construction within proposed works areas, but outside the road realignment construction area (including road realignment batters)</p> <p>A Recreation Continuance Plan will be developed and implemented to address and mitigate impacts on recreational users during construction</p> <p>The restricted zone adjacent to the dam wall and morning glory spillway will be extended during construction</p> <p>A Construction Traffic Management Plan will be developed and implemented to address and mitigate impacts to local residents and recreational users</p> <p>Impacted facilities at the Bowling Alley Point Recreation Area will be relocated in consultation with the Bowling Alley Point Recreation Trust</p> <p>Impacted facilities at the South Bowlo Fishing Club will be relocated in consultation with the South Bowlo Fishing Club</p> <p>An Emergency Response Plan will be developed in collaboration with key stakeholders (e.g. ambulance, SES, police, Tamworth hospital) and implemented as relevant</p> <p>A Boating Management Plan should be developed and implemented, which considers no go zones due to inundated perimeter vegetation and potential bank erosion issues</p> <p>State Water will further assess impacts to landholders, as follows:</p> <ul style="list-style-type: none"> <li>• Where land is within the new FSL, State Water proposes to acquire the full title to the land;</li> <li>• Where land is within the proposed road realignment boundary, State Water proposes to acquire the full title to the land;</li> <li>• Where State Water expects land may be regularly affected in order to manage the storage and associated works, such that the ability of the landowner to engage in ordinary usage of the land is affected, State Water will seek to acquire easements or full title depending on the level of impact; and</li> <li>• State Water will not acquire an interest where land might be affected by an extraordinary natural event.</li> </ul>	Rare	Moderate
Socioeconomic	Significant loss of potential income from project impacts	Moderate	Unlikely	Moderate	<p>State Water will further assess impacts to landholders, as follows:</p> <ul style="list-style-type: none"> <li>• Where land is within the new FSL, State Water proposes to acquire the full title to the land;</li> <li>• Where land is within the proposed road realignment boundary, State Water proposes to acquire the full title to the land;</li> <li>• Where State Water expects land may be regularly affected in order to manage the storage and associated works, such that the ability of the landowner to engage in ordinary usage of the land is affected, State Water will seek to acquire easements or full title depending on the level of impact; and</li> <li>• State Water will not acquire an interest where land might be affected by an extraordinary natural event.</li> </ul>	Rare	Moderate
Socioeconomic	Significant impacts to freehold land	Moderate	Unlikely	Moderate	<p>State Water will further assess impacts to landholders, as follows:</p> <ul style="list-style-type: none"> <li>• Where land is within the new FSL, State Water proposes to acquire the full title to the land;</li> <li>• Where land is within the proposed road realignment boundary, State Water proposes to acquire the full title to the land;</li> <li>• Where State Water expects land may be regularly affected in order to manage the storage and associated works, such that the ability of the landowner to engage in ordinary usage of the land is affected, State Water will seek to acquire easements or full title depending on the level of impact; and</li> <li>• State Water will not acquire an interest where land might be affected by an extraordinary natural event.</li> </ul>	Rare	Moderate

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
Socioeconomic	Significant impacts to leased crown land	Moderate	Likely	High	<p>Following completion of the Project, land that is not affected by increased FSL will be leased with longer term lease conditions (5 to 10 years). State Water uses an open tender process to allocate leases and will consider the impact of the Project on affected landholders and lessees.</p> <p>State Water will further assess impacts to landholders, as follows:</p> <ul style="list-style-type: none"> <li>• Where land is within the new FSL, State Water proposes to acquire the full title to the land;</li> <li>• Where land is within the proposed road realignment boundary, State Water proposes to acquire the full title to the land;</li> <li>• Where State Water expects land may be regularly affected in order to manage the storage and associated works, such that the ability of the landowner to engage in ordinary usage of the land is affected, State Water will seek to acquire easements or full title depending on the level of impact; and</li> <li>• State Water will not acquire an interest where land might be affected by an extraordinary natural event.</li> </ul>	Unlikely	Moderate
Spoil and waste	Inappropriate planning for and management of spoil and waste	Minor	Unlikely	Low	<p>The Contractor will maintain the construction site in a clean and tidy fashion</p> <p>The Contractor will ensure that waste is appropriately contained and disposed and no items fall into the surrounding water</p> <p>A waste collection and storage area will be established and maintained at each work area</p> <p>Water used to clean equipment should not be allowed to flow directly into the reservoir, instead it should be allowed to filter through hessian sacks or similar</p> <p>Recyclable materials and products made from recycled materials will be used where possible</p> <p>Materials with minimal packaging and transport requirements will be used where possible</p> <p>No burning of vegetation or waste is allowed under any circumstances</p> <p>General and putrescible waste and recyclable waste such as metal, plastic, glass, paper and timber will be segregated and collected in suitable waste containers positioned at convenient locations within each work area</p> <p>All waste containers will have secure lids in place to prevent water ingress and access to animals</p> <p>Waste storage areas will be kept away from drainage paths</p>	Unlikely	Low
Hazards and Risks	Large chemical or fuel spills	Minor	Unlikely	Low	<p>Emergency spill kits will be available on site and construction personnel trained in their use</p> <p>Chemical wastes will be collected in appropriately sized and labelled containers for disposal at an approved chemical waste facility</p> <p>Waste oil, solvents and hydrocarbons will be collected for reuse, recycling, treatment or disposal at an appropriately licensed facility</p> <p>Floating booms will be utilised during works near water and where the potential for hydrocarbon spills to water exist</p> <p>Material Safety Data Sheets (MSDSs) will be maintained on site for all hazardous substances, including fuels and chemicals, in a readily accessible location</p> <p>Fuels, lubricants and chemicals will be stored and handled within containment facilities, such as bunded areas or leak trays, designed to prevent the release of spilt substances</p> <p>All bunded areas will be designed to contain 110% of the volume stored within them</p> <p>All storage and handling equipment for fuels, lubricants and chemicals will be maintained in good working condition</p>	Rare	Low

Issue	Potential Impact	Consequence	Likelihood (without mitigation)	Severity before treatment (pre-mitigation risk)	Proposed mitigation	Likelihood (with mitigation)	Severity after treatment (residual risk)
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**WorleyParsons**

resources & energy



STATE WATER CORPORATION

CHAFFEY DAM AUGMENTATION AND SAFETY UPGRADE

ENVIRONMENTAL IMPACT STATEMENT

STATE SIGNIFICANT INFRASTRUCTURE

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# Appendix 15: State Water Environment Policy and EMP



# ENVIRONMENTAL MANAGEMENT PLAN

2011 – 2016

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# INTRODUCTION

State Water Corporation (State Water) manages, constructs, operates, and maintains efficient, coordinated and commercially viable systems and services for capturing, storing and releasing water to approximately 6,300 licensed water users along NSW regulated rivers as well as managing associated environmental flow releases. While these are State Water's principal objectives and functions, the corporation aims to demonstrate continuous commitment to environmentally sustainable practices.

This Environmental Management Plan (EMP) 2011 – 2016, provides strategic direction for constant improvement and sound environmental management. This EMP outlines State Water's overarching framework for environmental management, and directs the development, implementation, monitoring and review of State Water's environmental objectives.

The principles of Ecologically Sustainable Development have been adopted in State Water's environmental management and operational practices, and are embedded within State Water's Environmental Policy.



# STATUTORY FRAMEWORK

State Water was created under the provisions of the NSW State Water Corporation Act 2004 and State Water's powers and responsibilities are defined by this legislation and subsidiary instruments, principally State Water's Operating Licence. The Operating Licence is audited by the NSW Independent Pricing and Regulatory Tribunal (IPART) against key performance indicators, and is reported to the portfolio Minister.

State Water is responsible for managing the storage and release of water which are detailed in Water Sharing Plans and Water Supply Work Approvals, issued through the NSW Office of Water (NOW).

Additional requirements from other legislation further contribute to defining the statutory framework under which State Water operates. Several NSW government agencies have joint responsibility for achieving the outcomes of a number of the actions outlined in this EMP.

Further, Memoranda of Understanding (MoU) are in place between State Water and NOW, Department of Industry and Investment (I&I) and the Department of Environment, Climate Change and Water (DECCW) which outline a commitment to common goals such as resource and information sharing, liaison and cooperation and dispute resolution, with respect to roles and responsibilities of each organisation.

# ENVIRONMENTAL MANAGEMENT APPROACH

This EMP is State Water’s primary tool for integrating environmental objectives and outcomes into management practices and was developed in consultation with key government and community stakeholders.

State Water has an environmental management approach, in line with ISO 14001 that provides a robust and systematic approach to managing environmental impacts (Figure 1: State Water’s Environmental Management Approach). This approach provides a process for the development, implementation, monitoring and review of environmental objectives, actions and performance measures set in this EMP.

**FIGURE 1: STATE WATER’S ENVIRONMENTAL MANAGEMENT APPROACH**



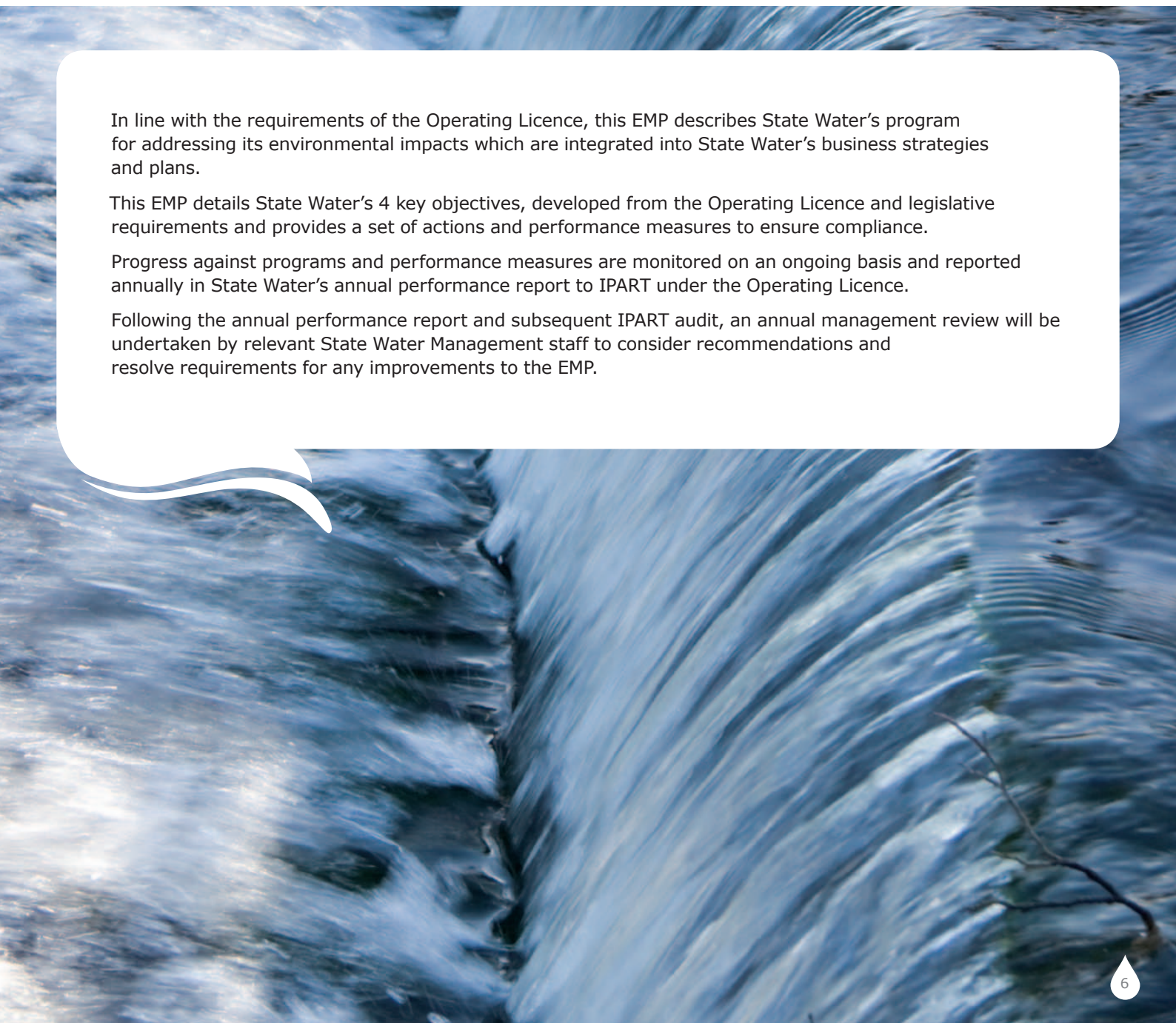


In line with the requirements of the Operating Licence, this EMP describes State Water's program for addressing its environmental impacts which are integrated into State Water's business strategies and plans.

This EMP details State Water's 4 key objectives, developed from the Operating Licence and legislative requirements and provides a set of actions and performance measures to ensure compliance.

Progress against programs and performance measures are monitored on an ongoing basis and reported annually in State Water's annual performance report to IPART under the Operating Licence.

Following the annual performance report and subsequent IPART audit, an annual management review will be undertaken by relevant State Water Management staff to consider recommendations and resolve requirements for any improvements to the EMP.



# OBJECTIVE 1:

## RESPONSIBLE LAND AND ASSET MANAGEMENT

State Water manages an extensive land asset portfolio (over 200,000 ha), most of which is associated with storages and in-stream structures. Many of these areas are therefore sensitive in terms of their proximity to water and environmental values.

This objective details State Water's approach to asset management, foreshore management and conservation management (European and Aboriginal Heritage) as well as compliance with planning approval and regulatory requirements.

Outcomes	Actions	Target	Responsibility	Performance Measure
Effective management of land and property assets	Site specific foreshore action plans to be implemented through Maintenance Management Systems (MMS)	By end of 2011	NA&S	All action plans loaded in MMS
		Annually from date implemented	M&S	Percentage backlog
	Minimise impact of works on the environment, and in particular on populations of identified threatened species and manage in accordance with site specific action plans and relevant statutory legislation	Nil reported incidents on threatened species on land/assets managed by State Water (ongoing)	All staff	Number of incidents reported
	Lease agreement conditions appropriately manage stock, pests, native animals and catchment conditions	Improve management of operations on leased land (ongoing)	AS&R	Number of actions requiring investigation
	Environment and Heritage Assessment Procedure followed on all developments and activities	All work compliant with EH&A procedure (ongoing)	All staff	Number of non-compliances
		Nil environmental infringements or penalty notices (ongoing)	All staff	Number of infringements
		Develop auditing program by mid 2011 and ongoing implementation	All staff	Audits conducted/ audits scheduled
		All Corrective Actions Required (CAR) are closed out within an agreed time frame (ongoing)	All staff	Percentage of CAR overdue

Outcomes	Actions	Target	Responsibility	Performance Measure
Effective management of all heritage assets	Finalise & implement Heritage Management Framework	Completed by mid 2011 and ongoing implementation	NA&S	Date framework completed and implemented
	Conservation Management Plans (CMPs) developed and implemented for all state significant assets	3 CMPs to be developed each year	NA&S	Percentage of assets with CMPs
		Capture recommendations from finalised CMPs in Maintenance Management Systems within 12 months	NA&S	Percentage of developed CMP actions loaded in MMS
		Implemented within agreed time frame (ongoing)	M&S	Percentage backlog
	Deliver Heritage Management Training	Ensure relevant personnel receive Heritage Management Training (ongoing)	NA&S	Training evaluations
				Percentage of staff trained
	Prepare a Heritage Asset Management Strategy (HAMS) as outlined in the 'State Agency Heritage Guide'	Approved by end of 2011 and ongoing implementation	NA&S	Date approved and implemented
	Consult as required with local and relevant Aboriginal groups prior to all applicable major projects and major maintenance routines or as appropriate for other significant events	Compliance with relevant sections of EH&A procedures (ongoing)	MP and M&S	Number of non compliances
Register s170 heritage items with NSW Heritage Office	Registered by end of 2011 and made publicly available (ongoing)	NA&S	Percentage of all heritage items registered	
Compliance obligations are met	Report on environmental performance against State Water's Operating Licence	Yearly or as required (ongoing)	NA&S and S&G	Percentage compliance of Operating Licence environmental clauses audited
	Operate assets in accordance with the conditions of Work Approvals	Compliance with Work Approvals (ongoing)	M&S and WD	Number of non compliances

# OBJECTIVE 2:

## MONITOR WATER QUALITY AND MANAGE OPERATIONAL IMPACTS ON AQUATIC HABITAT

Dams and other in-stream structures have the potential to alter the natural characteristics of aquatic ecosystems including flow patterns, water temperature, physiochemical parameters and fish passage.

This objective describes State Water’s approach to management and mitigations of: riverbank and bed erosion; water quality issues associated with storage and release (including mitigation of thermal impacts); barriers to fish passage; and algal blooms.

Outcomes	Actions	Target	Responsibility	Performance Measure
Comprehensive understanding of water quality impacts	Strategic Water Quality Monitoring Plan to be implemented through MMS	By end of 2011	NA&S	All monitoring requirements loaded into MMS
		Compliance with Strategic Water Quality Monitoring Plan (ongoing)	M&S	Percentage compliance with sampling frequency
		FRWSS compliance with Australian Drinking Water Guidelines (ongoing)	M&S	Percentage compliance with Drinking Water Guidelines
Mitigate cold water pollution impacts	Implement Operating Protocols to mitigate the impact of cold water pollution	Compliance with Cold Water Pollution (CWP) Operating Protocols for relevant water sources (ongoing), reported in Annual Works Approval report	M&S and NA&S	All CWP Operating Protocol requirements to be loaded in MMS
	Investigate works to mitigate cold water pollution in accordance with CWP strategy	Implement CWP program dependant on availability of funding (ongoing)	MP	Delivery of funded projects
Manage and mitigate effects of algal bloom	Operate and manage storages in accordance with RACP	Compliance with RACP (ongoing)	NA&S and WD	Percentage compliance with sampling frequency

Outcomes	Actions	Target	Responsibility	Performance Measure
Improved flow management to closely mimic natural flow variability	Implement Work Approvals conditions for environmental management and water flow variability	Compliance with Work Approvals for each water source (ongoing)	WD	Percentage compliance with flow variation rates
Improved fish passage at State Water barriers	Implement 10 year Strategic Fish Passage Program	Review program annually	NA&S	Program review undertaken
	Implement Fishway Monitoring Program of fish communities, pre and post construction of new fishways	Improve fish passage (ongoing)	NA&S	Number of priority structures addressed for fish passage
				River length (km) of free fish passage gained
				Area (ha) of aquatic habitat protection and rehabilitation during State Water works
Conserve aquatic habitats	Environment and Heritage Assessment Procedure followed on all developments and activities	Compliance with EH&A procedures (ongoing)	NA&S	Number of non compliances
	Comply with I&I protocol for investigating and reporting fish kills	Compliance with Protocol (ongoing)	NA&S	Number of reported fish kills
Compliance obligations are met	Report on environmental performance against State Water's Operating Licence	Yearly or as required (ongoing)	NA&S and S&G	Percentage compliance of Operating Licence environmental clauses audited
	Operate assets in accordance with the conditions of Work Approvals	Compliance with Work Approvals (ongoing)	M&S and WD	Number of non compliances

# OBJECTIVE 3:

## MANAGE RESOURCES EFFICIENTLY TO MINIMISE WASTE

This objective describes State Water’s approach to managing energy, waste and water consumption to minimise impacts of its operations in terms of conserving environmental, social and economic values.

The principles of Ecologically Sustainable Development provide State Water the opportunity to implement practical strategies that have the potential to make a positive impact on its operations.

Outcomes	Actions	Target	Responsibility	Performance Measure	
Improved uptake and delivery of sustainability targets and strategies	Review Energy Management Plan in accordance with the NSW Government Sustainability Policy	Implementation of Energy Management Plan by 2012	NA&S	Progress against targets in Plan	
	Define business requirements and system specification for an Energy Reporting System	Completed by 2013	NA&S	Date completed	
	Develop an Energy Reporting System	Completed by 2014	IS	Date completed	
	Develop and implement Carbon Neutrality Program	Developed by 2011	NA&S	All staff	Net CO <sub>2</sub> emissions (tonnes)
		Ongoing implementation of approved Carbon Neutrality Program			
Review vehicle selection policies and incorporate Cleaner NSW Government Fleet Policy initiatives	Meet NSW government green star rating yearly	Executive Management/ Finance	Green star rating		
Improved uptake and delivery of waste targets and strategies	Review and implement waste avoidance, paper reuse, recycling and purchasing strategies in the WRAPP	Ongoing implementation of WRAPP and reviewed annually	All staff	Percentage of waste recycled	
		Report WRAPP requirements bi-ennially and submit to DECCW	NA&S	Report submitted bi-ennially by 31st of August	
Improve water efficiency in State Water office buildings	Conduct water audits and implement water efficient actions	Complete water audit on major State Water office buildings by end of 2012	NA&S	Date audit completed	
		Implement water efficiencies in office buildings where feasible (when renewing/repairing)	NA&S	Total volume of water consumed (kL)/Number of office staff	

# OBJECTIVE 4:

## PROMOTE AN ENVIRONMENTALLY RESPONSIBLE CULTURE WITH ALL STAKEHOLDERS

This objective describes State Water's approach to consultation and ensuring the public, external and internal stakeholders are aware of planning decisions and actions undertaken by State Water.

Outcomes	Actions	Target	Responsibility	Performance Measure	
Establish strategic relationships	Support CMA strategic partnership projects and common improvement goals	Continue to work with CMAs on common management issues (ongoing)	NA&S	CMA representative on Community Consultative Committee	
		Assist in the development of Property Vegetation Plans to achieve positive and improved outcomes (ongoing)	AS&R	Number of Property Vegetation Plans complete	
	Continue to work with DECCW, I&I and NOW on shared responsibilities	Compliance with all MoUs and inter agency agreements (ongoing)	All staff	Percentage compliance of Operating Licence MoU clauses audited	
Inform the community of State Water's activities and its impact on the environment, where relevant	Consult with stakeholders and community in relation to new infrastructure and operational activities where required	Compliance with consultation requirements in the EH&A procedures	NA&S	Number of non compliance	
	Monitor customer satisfaction through periodic customer surveys	Survey conducted every 3 years	NA&S	Survey results	
Report on environmental performance	Report on environmental performance to IPART	Report submitted by end 1 September each year	S&G	Percentage compliance of Operating Licence environmental clauses audited	
An environmentally aware workforce	Incorporate and deliver environmental component in inductions and orientation	All new starters to State Water to undertake environmental inductions and orientation sessions	NA&S	Percentage of staff trained	
	Manage environmental incident response in accordance with Protection of the Environment Operations Act 1997 and or any other relevant legislation	No enforcement action and/or infringement notices issued to State Water and it's contractors	NA&S	Number of infringements, legal action and notices issued	
	Conduct targeted environmental awareness staff training	Increase staff environmental awareness training each year		NA&S	Percentage of staff trained
		Improved staff awareness of environmental issues		NA&S	Number of email communications /newsletters
		Develop environmental management education material by end of 2011		NA&S	Date completed

# GLOSSARY

<b>AS&amp;R</b>	Asset Strategy & Research (State Water branch)
<b>CMA</b>	Catchment Management Authority
<b>CMPs</b>	Conservation Management Plans
<b>DECCW</b>	Department of Environment, Climate Change and Water
<b>EMP</b>	Environment Management Plan
<b>EH&amp;A</b>	Environment and Heritage Assessment
<b>ESD</b>	Ecologically Sustainable Development
<b>FRWSS</b>	Fish River Water Supply Scheme
<b>HAMS</b>	Heritage Asset Management Strategy
<b>I&amp;I</b>	Department of Industry and Investment
<b>IPART</b>	Independent Pricing and Regulatory Tribunal
<b>IS</b>	Information Services (State Water branch)
<b>M&amp;S</b>	Maintenance and Services (State Water branch)
<b>MMS</b>	Maintenance Management Systems
<b>MoU</b>	Memoranda of Understanding
<b>NA&amp;S</b>	Natural Assets and Sustainability (State Water branch)
<b>NOW</b>	New South Wales Office of Water
<b>RACC</b>	Regional Algal Coordinating Committee
<b>RACP</b>	Regional Algal Contingency Plans
<b>S&amp;G</b>	Strategy and Governance (State Water branch)
<b>WA</b>	Work Approval
<b>WD</b>	Water Delivery
<b>WRAPP</b>	Waste Reduction and Purchasing Plan



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# APPENDIX A

## Environment Policy State Water Corporation

### 1. Purpose

The purpose of the policy is to:

- Clarify and formalise SWC’s commitment to protecting and enhancing the environment;
- Assist SWC to comply with its obligations under the *State Water Corporation Act 2004*, the *Water Management Act 2000*, and the *Water Act 1912*;
- Assist SWC to comply with its obligations under the Operating Licence and NSW environmental legislation; and
- To set the general direction for SWC’s environmental initiatives and programs.

### 2. Scope

This policy covers all the activities undertaken by SWC where there is potential for interaction with the environment.

### 3. Background

Section 6 of the *State Water Corporation Act 2004* sets out the principal functions of the corporation as follows:

- “(1) The principal functions of the Corporation are as follows:
- (a) to capture and store water and to release water:
    - (i) to persons entitled to take the water, including release to regional towns, and
    - (ii) for the purposes of flood management, and
    - (iii) for any other lawful purpose, including the release of environmental water,
  - (b) to construct, maintain and operate water management works,

- (c) any other functions conferred or imposed on it by the operating licence or by or under this or any other act or law.

(2) The Corporation may:

- (a) provide facilities or services that are necessary, ancillary or incidental to its principal functions, and
- (b) conduct any business or activity (whether or not related to its principal functions) that it considers will further its objectives.

(3) The exercise by the Corporation of any of its functions is subject to the operating licence and any applicable requirements under the *Water Management Act 2000* or the *Water Act 1912*.

(4) This section does not limit the functions of the Corporation apart from this section, but is subject to the provisions of the *State Owned Corporations Act 1989*, this act and any other act or law.”

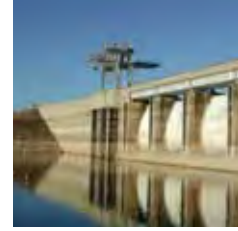
In carrying out its principal functions, State Water interacts with the environment both directly and indirectly.

Direct impacts affect the physical and social environment. These impacts may occur:

- within the storages; or
- downstream of storages following the release of water from them.

These impacts affect the biological, chemical and geo-morphological processes at work in these riverine and aquatic systems.

Indirect impacts upon the environment include energy consumption and waste generation.



## 4. Major Drivers

Development of this policy has been driven by and influenced by a number of factors, including:

- A need to exhibit a sense of social and environmental responsibility having regard to the interests of the communities in which State Water operates;
- The requirements of the *State Water Corporation Act 2004*;
- The requirements of the *Water Management Act 2000*;
- The requirements of the *Water Act 1912*;
- The provisions of the State Water Management Outcomes Plan;
- The provisions of the relevant Water Sharing Plans;
- The conditions of the Water Management Works Approvals (WMWA);
- In the case of the Fish River Water Supply Scheme, the conditions of the Part 9, *Water Act 1912* licence;
- Compliance with environmental and planning legislation;
- Compliance with the *Rivers and Foreshores Improvement Act 1948*; and
- The requirements of the Operating Licence.

## 5. Policy Statement

State Water will perform its principal and ancillary functions and operations in compliance with the principles of ecologically sustainable development contained in Section 6(2) of the Protection of the Environment Administration Act 1991. This is also a requirement under Section 5 subsection 2c of the *State Water Corporation Act 2004*.

The four principles are:

1. The precautionary principle;
2. Conservation of biological diversity and ecological integrity;
3. Inter-generational equity; and
4. Improved valuation, pricing and incentive mechanisms.

The principles of ecologically sustainable development will be reflected in State Water's business framework and corporate plan, the Environment Management Plan and other key operational management plans.

State Water duly recognises that the discharge of its principal functions will impact on the environment and that it can not only minimise these impacts but also improve its environmental performance.

In order to minimise these impacts and improve its environmental performance, State Water has embraced the following environmental objectives:

- To develop strategic partnerships with relevant Catchment Management Authorities;
- To involve the community in its strategic decision making processes;
- To provide leadership in catchment protection and assist the community understanding of the issue through community consultative committees and valley based customer service committees;
- To encourage and support the culture and practice of environmental responsibility within its staff;
- To manage its storages, infrastructure and foreshore lands for the provision of high



quality water; and for the conservation and enhancement of ecological, natural and cultural values;

- To minimise to the greatest practicable extent any adverse environmental impacts from infrastructure operation maintenance and construction works;
- To reduce the consumption of resources and energy and minimise the generation of waste and pollution through its operations;
- To improve its scientific and hydrologic knowledge in the area of water quality, catchment protection, storage management and environmental management; and utilise this knowledge to enhance its operational and environmental decision making;
- To monitor, audit, review and report on both annual and periodic bases on its environmental performance as part of continuous improvement;
- To comply with environmental legislation in all areas of operations; and
- To investigate and undertake where appropriate environmental improvement opportunities.

## 6. Implementation

The Environment Policy underpins the Environment Management Plan.

State Water will ensure that all employees who are relevantly connected with the delivery of its principal functions will implement the requirements of the Environment Policy and the Environment Management Plan within their areas of responsibility.

There will be regular monitoring of State Water's performance against the eleven environmental objectives set out above and the specific objectives and targets defined in the EMP.

## 7. Monitoring and Evaluation

This policy will be reviewed and updated in conjunction with the mid-term and end of terms reviews of the EMP.

## 8. Definitions

Environment means the components of the earth, including:

- (a) land, air and water; and
- (b) any layer of the atmosphere; and
- (c) any organic or inorganic matter and living organism; and
- (d) human made or modified structures and areas including components referred to in (a) to (c).



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# Appendix 16: Unanticipated Discovery Protocol



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**Protocol to be followed in the event that previously unrecorded Aboriginal object(s) (other than human remains) are encountered (modified from Navin Officer Heritage Consultants 2012)**

In the event that one or more Aboriginal objects are encountered during construction works, the following protocol will be actioned:

1. All works must halt in the immediate area of the Aboriginal object(s) and any further disturbance to the area of the object(s) prevented.
2. The discoverer of the object(s) will notify machinery operators in the immediate vicinity of the object(s) so that work can be halted.
3. The object(s) will be reported to the site supervisor and the Principal/Project Manager.
4. The approximate extent, nature, associated archaeological potential and likely significance of the Aboriginal object(s) will be determined by an appropriately qualified person or persons (such as the project archaeologist), in consultation with sites officer(s) and/or representatives nominated by the registered Aboriginal stakeholders.
5. The appropriately qualified person(s) will determine if the object(s) belong to a previously recorded site or potential archaeological deposit. If the location of the object(s) is consistent with a previous recording, construction work can proceed provided that any required mitigative actions defined in an approved Management Plan which addresses cultural heritage impacts have been completed.
6. If the object(s) comprise a new site or potential archaeological deposit then the NSW Office of Environment and Heritage (OEH) will be notified and an appropriately qualified person or persons (such as the project archaeologist), accompanied by, and in consultation with the Aboriginal Focus Group representatives will record the object(s) and assess the likely significance of the object(s) and any associated deposits.
7. The new recording will be documented on an OEH site card and lodged with OEH.
8. The recording and assessment results will be reported to the Principal /Project Manager and an appropriate management strategy will be developed and instigated, in consultation with Aboriginal community representatives, OEH, and where appropriate the Department of Planning and Infrastructure. The management of the object(s) may involve:
  - a. An archaeological salvage excavation with the aim of recovering a sufficient sample of the deposit to allow an analysis which is commensurate with the assessed potential of the deposit; or
  - b. Collection of surface artefacts and any other required samples; and
  - c. The temporary storage of recovered Aboriginal objects by the project archaeologist pending the completion of analysis.
9. In the event of the collection of Aboriginal artefacts from the project area:



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- a. The artefacts will be appropriately recorded and collected.
- b. The location of the recovered artefacts will be recorded using a hand-held GPS, (if available and where necessary), or alternatively, by noting road project chainage intervals;
- c. The collected artefacts will be placed in a clear-plastic bag and placed in temporary secure storage at the site office;
- d. Each bag should have the following information marked on it using a broad nib permanent spirit pen:
  - The site location;
  - The date (day/month/year);
  - The collector's name;
  - Any other relevant information (such as a GPS reference or description of contents); and
  - Where necessary, the Principal is responsible for the temporary and secure storage of recovered Aboriginal objects prior to their long term management (refer step 10).

10. Following the completion of those construction works in which Aboriginal objects may potentially be revealed, the project archaeologist will analyse the data from collected artefacts, together with any data and finds from salvage excavations, (conduct any radiocarbon dating determinations, where appropriate) and prepare a report.

11. The post-analysis management of any recovered items will be the subject of discussion and a potential resolution(s) of the Aboriginal Focus Group, and liaison with and approval from OEH.

**Protocol to follow in the event of the discovery of suspected human remains (modified from Navin Officer Heritage Consultants 2012)**

In the event that suspected human material is encountered during construction works, the following protocol will be actioned:

1. All works must halt in the immediate area of the suspected human material find(s) and any further disturbance to the area of the find(s) prevented.
2. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted.
3. The find(s) will be reported to the site supervisor and the Principal/Project Manager.
4. If there is substantial doubt regarding a human origin for the remains, then consider if it is possible to gain a qualified opinion within a short period of time. If feasible, gain a qualified opinion (this can



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circumvent proceeding further along the protocol for remains which are not human). If conducted, this opinion must be gained without further disturbance to the find(s) or the immediate area of the find(s). (Be aware that the site may be considered a crime scene that retains forensic evidence.) If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

5. Immediately notify the following of the find(s):
  - a. The local Police (this is required by law);
  - b. An OEH archaeologist or Aboriginal Heritage Officer from the North West Branch EPRD Dubbo (02 6883 5330)
  - c. Representative(s) from Aboriginal community; and
  - d. The project archaeologist (if not already notified).
6. Co-operate and be advised by the Police and/or coroner with regard to further actions and requirements concerning the find area. If required, facilitate the definitive identification of the material by a qualified person (if not already completed).
7. In the event that the Police or Coroner instigates an investigation, construction works are not to resume in the designated area until approval in writing is gained from the NSW Police.
8. In the event that the Police and/or Coroner advise that they do not have a continuing or statutory role in the management of the finds then proceed with the following steps:
9. If the finds are not human in origin but are considered to be archaeological material relating to Aboriginal occupation then proceed with Unanticipated Discover Protocol for Aboriginal objects (other than human remains).
10. If the finds are Aboriginal or probably Aboriginal in origin:
  - a. Ascertain the requirements of OEH, the Heritage Branch, the Principal/Project Manager, and the project archaeologist and the views of the Aboriginal Focus Group.
  - b. Based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:
    - Avoiding further disturbance to the find and conserving the remains *in situ*;
    - Conducting archaeological salvage of the finds following receipt of any required statutory approvals;
    - Scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial;
    - Recovering samples for dating and other analyses; and/or
    - Subsequent reburial at another place and in an appropriate manner determined by the Aboriginal community.



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11. If the finds are non-Aboriginal in origin:

- a. Ascertain the requirements of the Heritage Branch, Principal/Project Manager, and the views of any relevant community stakeholders and the project archaeologist.
- b. Based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:
  - Avoiding further disturbance to the find and conserving the remains *in situ*;
  - Conducting archaeological salvage of the finds following receipt of any required statutory approvals;
  - Scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial;
  - Recovering samples for dating and other analyses; and/or
  - Subsequent reburial at another place and in an appropriate manner determined in consultation with the Heritage Office and other relevant stakeholders.

12. Construction related works in the area of the designated area may not resume until the Principal/Project Manager receives written approval from the relevant statutory authority:

- c. from the Police or Coroner in the event of an investigation;
- d. from OEH in the case of Aboriginal remains outside of the jurisdiction of the Police or Coroner; and
- e. from the Heritage Branch in the case of non-Aboriginal remains outside of the jurisdiction of the Police or Coroner.