



Murray Irrigation Limited

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Response to IPART Issues paper
on the review of the
Operating Licence for State Water Corporation

November 2004

Executive Summary

Murray Irrigation Limited is Australia's largest private irrigation corporation. The company and its shareholders are beneficiaries of the regulated Murray River system and therefore have a responsibility to contribute to the efficient costs of operating river regulation.

In the NSW Murray the pivotal role of RMW in the capture, storage and release of water into the Murray River creates additional layers of administration and presents significant potential for inefficient costs, duplication of effort and lengthens the decision making process.

Murray Irrigation considers IPART in reviewing State Water's initial operating licence should focus on State Water's principal function, the storage and release of water.

Murray Irrigation considers that State Water still has some operational issues to work through which currently present barriers to efficient operations. The most concerning of these is the power struggle between those involved in river regulation including between State Water and DIPNR.

Murray Irrigation considers that State Water's operational objectives are still ambiguously defined. Murray Irrigation supports the principle of State Water being the operator of the water supply with DIPNR acting as regulators and the CMA being responsible for determining catchment priorities for environmental management.

Murray Irrigation recommends that operational functions conducted by DIPNR should be transferred to State Water immediately to remove the overlap with DIPNR in water management and administration. Functions Murray Irrigation is recommending be transferred to State Water are:

- Water access and supplementary water licence compliance.
- Available water determinations and supplementary water event announcement.
- Annual transfers.

State Water does not currently have the expertise to complete these functions and the relevant expertise should be transferred from DIPNR. A consequence of these functions being transferred to State Water is a requirement for State Water to be involved at the MDBC, at a Deputy Commissioner level and also in MDBC groups related to water management. Regulatory overlap should be identified and made transparent. IPART should specifically discourage overlap.

Murray irrigation supports the development of a set of measurable, auditable and achievable performance indicators and standards for State Water. The performance indicators and standards in State Water's operating licence need to be developed into locally relevant key performance indicators for each regulated river system.

Murray Irrigation recommends the performance indicators and standards proposed for State Water's operating licence are road tested for robustness and suitability by Customer Service Committees. A number of potential performance indicators and standards are proposed.

Murray Irrigation considers that the monitoring of compliance is a critical issue concerning State Water's operations. State Water must have clear incentives and performance based measures to stop theft of water.

Murray Irrigation supports inclusion of conditions in State Water's operating licence which ensure a rigorous but pragmatic asset management by State Water.

Murray Irrigation supports the need for State Water to manage the storage and release of water consistently with WSPs and for compliance with WSP's being a licence condition.

Murray Irrigation recommends against additional environmental requirements being included in the first operating licence for State Water. The WSPs are a new statutory instrument, State Water as a State owned water manager is a new organisation. If the experiences of Murray Irrigation's privatisation are mirrored, the publicly available environmental accountability associated with water management will increase dramatically as a direct result of both corporatisation and the existence of the WSP.

Murray Irrigation's preference is for known activities State Water is directly responsible for to be included as part of State Water's operating licence because the operating licence conditions are a more transparent and accountable way of regulating State Water's activities. Murray Irrigation believes the strength of any MoU is dependent on the willingness of **all** parties and as a regulatory or legislative mechanism they are potentially ineffective.

Murray Irrigation's preference, in the case of State Water which is attempting to achieve a commercial focus and operational efficiency, is that extent of State Water's involvement in any MoUs be minimised.

Murray Irrigation does not believe it is necessary to have specific customer service obligations included in the State Water's operating licence. However Murray Irrigation believes it is necessary that the operating licence includes a range of performance standards or indicators which measure parameters which are important to customers.

Murray Irrigation does not consider it necessary that State Water consult with DIPNR, prior to taking action directly with water users for any issue that relates to water diversions.

Murray Irrigation supports the continuation of valley based customer service committees which operate via consensus. The operation of these committees needs to be overhauled and improved to ensure they are able to provide

valuable input to the activities and priorities for State Water in their respective valleys.

Murray Irrigation does not support the establishment of a state wide CCC. Murray Irrigation does not believe that the creation of this committee will be an effective forum for providing strategic input on community issues to State Water.

The first operational audit of State Water's new operating licence should be comprehensive, if a targeted approach is adopted priorities for audit are; metering and compliance, river operations and asset management.

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Acronyms and Abbreviations used in this report

CMA	Catchment Management Authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEC	Department of Environment and Conservation
DIPNR	Department of Infrastructure, Planning and Natural Resources
DPI	Department of Primary Industry
ESD	Ecological Sustainable Development
GL	Gigalitre
GPS	Global Positioning System
IPART	Independent Pricing and Regulatory Tribunal
LWMP	Land and Water Management Plan
MDBC	Murray Darling Basin Commission
ML	Megalitre
NATA	National Association of Testing Authorities
NSW	New South Wales
RMW	River Murray Water
WRM	Water Resource Management
WSP	Water Sharing Plan

1 Introduction

Murray Irrigation Limited welcomes the opportunity to participate in the Independent Pricing and Regulatory Tribunal's (IPART) review of the operating licence for State Water Corporation. Separation of State Water from the Department of Infrastructure, Planning and Natural Resources (DIPNR) and the creation of State Water as a State owned corporation is a genuine opportunity to form an efficient, focussed bulk water supply organisation which is also publicly accountable.

Murray Irrigation anticipates there are significant challenges and limitations on State Water becoming a commercially focussed efficient organisation and capable of achieving workplace reform. These challenges include but would not be limited to:

- State Water's organisational history.
- Continuing symbiosis between the functions of State Water and DIPNR.
- Limitations of public sector employment conditions on work place practices, including State Water's ability select and recruit staff, at least initially outside of the public sector.
- Wide geographic spread of the workforce.
- Co-location with DIPNR in State Government offices.

IPART through their review of State Water's operating licence and their bulk water price determination will have an integral role in State Water's principal objective:

“To capture, store, and release water in an efficient, effective, safe and financially responsible manner.”

The two current reviews also present an opportunity to provide State Water with the business environment where it works to overcome the limitations and challenges listed above.

Murray Irrigation, in this submission, will again draw IPART's attention to the pivotal role of the Murray Darling Basin Commission's (MDBC) commercial arm River Murray Water (RMW) in the capture, storage and release of water into the Murray River. The Murray Darling Basin Agreement clearly outlines the role of the MDBC and the water sharing arrangements for the River Murray system. Murray Irrigation encourages IPART to recognise that many of the functions exclusively performed by State Water in other river valleys in NSW are managed by RMW in the NSW Murray, creating an additional layer of administration. The institutional arrangements for the MDBC and RMW and the relationships with IPART and also State Water need to be identified and considered by IPART in both this review and the bulk water price review.

Murray Irrigation is looking to IPART, through the two parallel reviews, to continue to rigorously and objectively analyse and critique State Water's operations. It is expected that, through a combination of pricing mechanisms and

operating conditions, IPART will force State Water to continuously improve both their financial efficiency and operational performance.

This submission presents Murray Irrigation's views on the questions raised by IPART in their issues paper (IPART 2004(a)). Where relevant it also includes comments on State Water's response to IPART's issues paper (State Water 2004(a)). In developing its submission Murray Irrigation has aimed to provide constructive and concrete comments about how State Water and or its regulatory environment could be changed to improve the performance of State Water as an operational organisation responsible for the delivery of bulk water to licence holders.

In March next year Murray Irrigation celebrates 10 years as an unlisted public company. The company was established when the government owned and operated NSW Murray Irrigation area and districts were privatised and ownership transferred to irrigators. Murray Irrigation's knowledge and experience with structural reform in the water industry are relevant to IPART's review. Our experience with separation from government and establishing Murray Irrigation as water supply company with a Board have analogies with the issues being faced by State Water in its establishment phase. This experience combined with our direct experience as a major customer of State Water South is the foundation of our arguments presented in this submission to IPART.

Murray Irrigation also encourages IPART to recognise that reform of State Water will be a gradual process. The initial operating licence will be reviewed in the future. Initially, IPART's attention should focus on State Water's principal function: the storage and release of water.

1.1 Background

Murray Irrigation is the single largest private irrigation company in NSW and an important customer of State Water. In the 2002/03 season when the allocation was only 10% Murray Irrigation paid more than \$4.68 million to State Water in bulk water charges.

Murray Irrigation supplies irrigation water and drainage services to 2,400 farms owned by 1,600 family farm businesses in the southern Riverina. Our area of operation covers nearly 800,000ha of farmland just north of the Murray River. Murray Irrigation is a gravity, off-river irrigation system that includes 2,956 kilometres of earthen supply channels and 1,222 kilometres of stormwater drainage channels. Our infrastructure has a replacement value of \$500 million.

Murray Irrigation has an annual turnover of between \$33 and \$50 million depending on water sales and is a major employer with 129 permanent staff. We also extensively used local contractors.

Murray Irrigation is regulated by the State Government through its licences, which in addition to our water access licences include an operating licence with

Ministerial Corporation and an Environment Protection Licence with the Department of Environment and Conservation.

A detailed description of Murray Irrigation and its operations is presented in the Appendix.

2 State Water Objectives

Murray irrigation notes IPART has attempted to
“**Express State Water’s obligations simply and unambiguously**”
(IPART 2004a pg 21).

As a water management corporation, Murray Irrigation is well aware that the capture, storage and release of water in an efficient, effective, safe and financially responsible manner are not simple. Nor are the operation objectives outlined for State Water simple and unambiguous. For example Clause 5 of the State Water Corporation Act (SWCA2004) (2) (ii) states as an objective that State Water is to
“... maximise the net worth of the State’s investment in the Corporation”
(cited in State Water 2004(a) pg 4).

How is worth to be valued? In monetary terms?

Return to the State from its water management infrastructure is not only possible via a direct monetary injection funded by taxing water users.

- Australian consumers of food benefit from access to a reliable, quality and cheap supply. Does the government really want a policy that results in upward pressure on food prices for poorer families?
- Profitable farms have an enhanced capacity to invest in works to improve the environmental values of their farm such as biodiversity preservation which again delivers a benefit to the State. Due to the inelasticity of water demand (State Water 2004b), increased water prices will erode the involvement capacity of farmers in biodiversity preservation.
- State water through its operations also impacts directly on issues such as water quality (IPART 2004 (a) Page 31). Improved water quality, aside from providing ecological benefits, in the longer term could lead to increased society health and reduce hospital requirements. Managing the resource with social and ecological goals in mind will work to maintain the States social and natural wealth.

IPART note that

“...a decline or failure of State Water’s system performance could impact significantly on customers, the environment and the wider community”
(IPART 2004(a) Page 29).

Should State Water receive appropriate financial incentives to invest in projects that involve a return to the State via a convoluted network of social interactions such as improved water quality? Social, economic and ecological objectives are not necessarily mutually exclusive objectives. However, at some stage, State Water, by virtue of its delegated control, will be in a position to trade natural social and economic capital or be faced with weighting decisions that compare short term financial gains versus long-term social benefits. How appropriate and unambiguous is the objective of “maximising worth” for evaluating these decisions?

Objective (2) (c) from the State Water Corporation Act (SWCA 2004) states that State Water is:

“where its activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development [ESD] contained in section 6 (2) of the *Protection of the Environment Administration Act 1991* (IPART 2004 (a) page 4).”

What is an appropriate effect to trigger the application of ESD principles? Inherent in ESD principles is that all decisions are considered within an ESD framework. The wording within this objective implies that State Water has a choice over what activities it chooses to apply principles of sustainable development to through its decision making process. Considering the complexity of applying ESD principles it is surprising that State Water make no reference to such difficulties in their responses to IPART process in either of State Water’s response papers. Surely if they are to introduce pricing mechanisms to say meet ESD principle ‘d’ from the *Protection of the Environment Administration Act 1991* which aims for:

“improved valuation, pricing and incentive mechanisms...”

then IPART would need be consulted. Or is the inclusion of ESD principles is a token publicity stunt? State Water should either adopt them or remove them!

This is a limited discussion of the ambiguity inherent in the objectives of State Water. In this climate of ambiguity how can one expect operational objectives to function efficiently?

Murray Irrigation recommends that State Water should focus on its principal function, the capture, storage and release of water to achieve operational efficiency.

2.1 Are the delegated functions appropriate?

Murray Irrigation supports the principal functions of State Water:

- To capture and store water and to release water:
 - To persons entitlement to take water, including release to regional towns.
 - For the purpose of flood management
 - For any lawful purpose, including the release of environmental water.
- To construct, maintain and operate water management works.

Murray Irrigation argues all operational functions should be the sole responsibility of State Water. In some circumstances the difference between regulatory activities and operational activities is subtle. For example, once the rules are defined by an instrument such as the WSP, is following the rules as specified in the plan an operational issue or a regulatory issue.

Murray Irrigation believes that some additional functions should be delegated to State Water to improve regulated water management in NSW. These additional functions are discussed below and include functions that currently have non-exclusive delegation to State Water and additional functions.

2.2 Should some of these functions be exclusively conferred on State Water or confined in any way?

Murray Irrigation is concerned about the ongoing proposals both in the operating licence and in State Water's submission for non exclusive exercise of functions relating to licence compliance, fraudulent extraction of water and pursuit of unpaid accounts.

Murray Irrigation recommends these functions should be the exclusive responsibility of State Water. The current involvement of two organisations in administering this role perhaps has led to some ambiguity and cost increases and little action.

State Water, under the WSP, is charged with ensuring that extracted water does not exceed a given maximum. State Water also has a policy of not doing something unless the benefits exceed the costs. This second policy has been used as an excuse for the failure of State Water to effectively monitor and enforce water use compliance by licence holders with small number of entitlements, mostly river pumpers.

Through exclusively delegating compliance related functions to State Water it is hoped that the incentive to monitor and enforce compliance will improve.

The continuing drought in the southern Riverina which has caused a number of low allocation water years has highlighted the issue of licence compliance, and the need for metering of **all** water diversions for irrigated agriculture.

The community in the western part of Murray Irrigation's area of operation includes water users supplied through Murray Irrigation's channel system and irrigators who hold water access licences to pump water from a number of regulated rivers and creeks, for example the Edward River and Wakool River.

It is common knowledge that the vigilance of State Water's meter readers is in stark contrast with the daily operations of Murray Irrigation's water distribution staff and weekly meter reading. Furthermore Murray Irrigation shareholders must place an advance order for their water and also notify Murray Irrigation when they

wish to stop. All wheels are stopped and started by Murray Irrigation's water distribution staff. Murray Irrigation has invested in radio telemetry to provide external access to flow data in our major supply channels and on our escapes, this information combined with daily presence in the field assists Murray Irrigation identify, quickly, potential illegal diversions. This level of scrutiny of water use is essential to the efficient and equitable operation of Murray Irrigation's water supply system to its shareholders.

It is Murray Irrigation's view that unless one organisation, preferably State Water is made responsible for ensuring licence compliance the current abysmal performance will continue. Furthermore incentives and penalties to improve compliance should be part of State Water employment conditions.

Theft within Murray Irrigation directly increases our losses and reduces the water available to our shareholders. As such, on behalf of our shareholders, Murray Irrigation actively pursues water thieves and discourages them through litigation and disconnecting supply. Theft by river pumpers directly affects other water users since it reduces the pool available for general security licence holders.

Reducing theft and other water use efficiency projects will increase the pool of water available to be sold to other irrigators hence increasing State Water's revenue. Despite this, Murray Irrigation considers that State Water and DIPNR have been inactive in pursuing water thieves. How many prosecutions have been made for breaches recently? Have State Water justified their claims that it is too costly to monitor compliance and hence theft through answering two questions:

- At what price per ML is monitoring theft economically justifiable?
- What is the theft detection rate per unit effort?

The lack of pressure on State Water to act with an economic or even a moral mindset is obvious and must be addressed.

If State Water continues to refuse to effectively ensure water use compliance on their own then perhaps regulations should force them to do so. If the government can't do anything about water thieves then why should Murray Irrigation irrigators pay for it? If a customer cannot support fair monitoring and compliance efficiently then perhaps they should have access removed. It is certainly not fair to allow a system that punishes those who provide accurate monitoring and compliance to continue!

2.3 Should the operating licence address how the exercise of these functions is to be co-ordinated between State Water and DIPNR?

Murray Irrigation supports the operating licence clearly describing how the functions between State Water and DIPNR, which cannot logically be separated, are co-ordinated. Murray Irrigation also recognises that pursuit of total codification of water management arrangements, given the variability of the water resource may lead to suboptimal rules for either or both water users or the environment, unless the arrangements between the State Water and DIPNR allow for a review process.

This is primarily an issue for available water determination, implementation of environmental flow management arrangements and announcement of supplementary water events. Murray Irrigation considers that the operating licence could describe the process for State Water and DIPNR to discuss alternatives to the “rules” and the methods for introducing change.

2.4 Regulatory overlap - How should potential regulatory overlap be addressed in the operating licence?

IPART states that State Water’s role is primarily operational and commercial in nature. Regulatory and policy functions relating to water resource management issues are the responsibility of DIPNR. The question of overlap in functions between State Water and DIPNR needs to be resolved urgently, as do the issues of accountability and compliance.

Murray Irrigation has observed and been subject to the inefficiencies of the failure to effectively separate and delineate the functions of State Water from DIPNR, the resource manager. The process of separation, first started by IPART’s ring fencing approach in the mid 1990s is still not complete. The interim protocols for the separation of State Water from DIPNR (September 2003) showed how intertwined these two organisations were with respect to the delivery of water and water related natural resource management functions.

One senior Murray Irrigation manager has described the inability of State Water and DIPNR to agree on how functions are delineated between the two organisations is like a *messy* divorce, with the parents; State Water and DIPNR, fighting over custody of the *kids*; the licence holders.

In the NSW Murray the issues are further confused because of the existence of RMW, the operational arm of the MDBC. The assets controlled and managed under the *Murray Darling Basin Agreement* are investigated, designed, operated and maintained for and on behalf of the MDBC, by the three constructing authorities from NSW, Victoria and South Australia (MDBC, 2003). RMW’s customers are the States. Hence RMW has no direct or formal relationship with the ultimate water users (MDBC, 2003).

The following table covers the 27 functions identified in the State Water submission to IPART operating licence review and the accountability Murray Irrigation considers should apply to each function. Functions currently controlled or directed by RMW for MDBC infrastructure are asterisked to highlight the how State Water’s responsibilities are substantially different in the NSW Murray compared to their responsibilities in other river valleys in NSW.

2.5 Summary of State Water Functions

Function	Accountability
1. Asset ownership	State Water*
2. Total Asset Management Planning	State Water*
3. Asset Operation	State Water*
4. Routine O&M	State Water*
5. Renewals activity	State Water*
6. Compliance upgrades for dam safety, OHS & environmental needs	State Water*
7. Enhancement developments	DIPNR to determine, State Water to manage construction*
8. NSW Constructing Authority to MDBC	State Water
9. Flow monitoring	State Water*
10. Water operations planning	State Water must be consistent with Water Sharing Plan*
11. Resource assessment	State Water*
12. Allocation assessment	State Water
13. Allocation announcements	State Water
14. Supplementary water	State Water* DIPNR to identify whether an environmental needs to be met
15. Management of allocated water	State Water
16. Water order management	State Water
17. Water use monitoring	State Water
18. Carryover management	State Water
19. Demand management	State Water
20. Bulk water transfers	State Water*
21. Drought contingency plan	State Water DIPNR approval
22. Flood operations	State Water*
23. Hunter River salinity trading scheme	NA
24. Storages Water Quality	State Water monitoring* DIPNR to co-ordinate management
25. Customer Water Account management	State Water
26. Temporary water transfers	State Water (intra valley, intervalley and interstate)
27. Licence administration	State Water to manage under contract

NA – not applicable to Murray Irrigation.

Murray Irrigation considers many of the functions which involve overlap between State Water and DIPNR should be transferred directly to State Water. In recommending transfer of a number of additional functions from DIPNR to State Water Murray Irrigation recognises that State Water's staff currently do not have the skills to complete some of the functions which Murray Irrigation considers

would be best, in the future performed by State Water not DIPNR. However, this should not be seen as a reason to keep them within DIPNR. It should be seen as an opportunity to shift these skilled staff resources to State Water, improving the core competencies of State Water.

2.6 Available water determinations, supplementary water events

Murray Irrigation believes that DIPNR is unnecessarily holding on to a number of processes which directly involve State Water customers which logically should be transferred to State Water. For example, the NSW Murray the Water Sharing Plan (WSP) which has been gazetted clearly outlines the rules for sharing water between different licence holders and the environment. It also provides guidance on the announcement of supplementary water events. Formulating available water determinations involves assessment of water available and following the WSP rules. This is not an activity DIPNR needs to perform as part of its resource management function.

DIPNR produces an annual operating plan for the NSW Murray which clearly outlines the rules and procedures for water management in the forthcoming year. The annual allocation plan is an important initiative of DIPNR which needs to continue. The WSP is the basis of this document, however, the annual operating plan is also able to highlight particular issues relevant to the current season, for example the status of the Barmah/Millewa forest account and limitations on annual trade caused by particular supply issues. This is an activity which could easily be transferred to State Water, with a requirement that its development requires DIPNR endorsement that the annual allocation is consistent with the WSP. This requirement could be including as part of State Water's operating licence conditions.

Murray Irrigation's objectives in recommending responsibility for available water determinations be shifted to State Water is to reduce the layers of administration involved in allocation announcements. It should also contribute to improving State Water's focus on water management and availability.

This position will undoubtedly be disputed by DIPNR. In the NSW Murray the allocation process now includes the following:

1. RMW complete the water resource assessment, and determine the amount of water available to NSW.
2. This information is then circulated to NSW, Victoria and South Australia who check the assessment, the final assessment is then sent to DIPNR.
3. DIPNR make the available water determination for NSW Murray licence holders based on the RMW's assessment and the WSP and annual allocation plan rules.
4. An announcement is made by DIPNR.

State Water is seeking a greater role in the process which could add an additional and in Murray Irrigation's opinion an unnecessary layer to what is already a slow process involving a number of organisations.

2.7 Annual water transfers

Under the current arrangements State Water process and approve annual transfers within the NSW Murray. State Water use DIPNR database and DIPNR forms and in at least the NSW Murray staff are co-located with DIPNR.

Inter-valley and interstate transfers require the approval of DIPNR.

Murray Irrigation is recommending that State Water be responsible for processing and approving all annual transfers. As far as possible this process should be streamlined and utilise one electronic register.

If State Water were responsible for all transfers then the layers of administration would reduce. Furthermore, opportunities would exist for State Water to improve the efficiency of the licence administration system, currently operated by DIPNR who do not actually process the transfers.

If this recommendation is not acceptable then serious consideration should be given to removing this function from State Water and placing the function in DIPNR. As DIPNR and State Water develop and change as organisations, this important administrative function will continue to be plagued by poor performance, complaints by both organisations about the other and blame attributed to inadequacy in the other organisation. The result of this situation will be slow processing of annual transfers. With water markets like Murray Irrigation's water exchange operating 24 hours a day, slow processing has important commercial ramifications.

At present no transfers have been processed by STATE WATER for one month due to study leave granted to the Customer Service Officer. This is affecting the capabilities of our irrigators to operate their businesses efficiently. In a climate where the government is actively attempting to remove barriers to trade to ensure the efficient transfer of water for economic use this is not acceptable!

2.8 Issues arising from these recommendations

In recommending State Water become responsible for range of water resource allocation functions, currently performed by DIPNR Murray Irrigation recognises that State Water will need to become more involved in aspects of RMW. At the Commission and RMW level a range of operation and policy issues are often discussed collectively. The Commission Office has established a range of policy groups which provide advice to MDB Commissioners and to RMW. One example is the Water Liaison Committee, which includes government representatives from each State. This Committee is responsible for checking RMW's assessment of the water available to each State. In order to complete water availability assessment and available water determinations State Water need to become members of this Committee.

Murray Irrigation recommends that participation in MDBC and RMW forums could be achieved by the General Manager of State Water becoming a Deputy Commissioner. The Chief Executive of Goulburn Murray Water is a Deputy Commissioner to the MDBC, Goulburn Murray Water has similar functions to State Water, but is also responsible for water distribution in the gravity fed irrigation districts in Victoria.

Under the current arrangements participation in MDBC groups related to water management is the exclusive domain of DIPNR staff. This is a crucial issue for NSW Murray Water users because of the role of River Murray Water and MDBC decisions to water supply in the NSW Murray.

3 Performance standards and indicators

Murray Irrigation supports the development of a set of measurable, auditable and achievable performance standards and indicators for State Water. Murray Irrigation believes performance indicators need to be developed for State Water at a corporate level with an aligned set of performance standards and targets for each regulated river system.

Murray Irrigation understands the distinction between performance standards and performance indicators is that performance standards are a specific minimum expected result, for example a performance standard would be maintain minimum daily flows at point x, as described in the WSP 100% of the time. In contrast performance indicators are measures of actual performance, and can be used to compare performance between time periods.

Murray Irrigation agrees with the issues which need to be considered when developing performance standards and indicators identified by IPART. That is any system performance standards or indicator specified in the operating licence must:

- Be relevant to State Water's objectives and functions under the Act.
- Be achievable without significantly increasing the cost of service provision or affecting the water supply arrangements with customers.
- Measure system performance in objective terms, without significantly increasing administrative costs.
- Be concise, unambiguous and understandable to all stakeholders (IPART 2004 (a) page 24).

A distinction needs to be made between the performance standards and targets which should be considered for inclusion in State Water's operating licence and suitable indicators for performance of all aspects of State Water's business. Normal business planning and quality assurance systems will involve State Water developing and reviewing a wide range of performance indicators which measure the businesses' total performance. Murray Irrigation recommends the performance standards and indicators in State Water's operating licence contain a set of

performance standards and targets for State Water which measure operational performance.

Inclusion of standards and performance indicators which cover all aspects of State Water's business, including internal functions such as Occupational, Health and Safety, staff training etc, as a requirement of the operating licence is not necessary in Murray Irrigation's opinion.

What are appropriate performance standards and indicators for State Water?

Murray Irrigation recommends performance standards and indicators be developed for each of the 27 functions identified in the State Water submission to IPART, these functions should be grouped into activities which relate to the principal functions of State Water.

Murray Irrigation's experience with development and measurement of performance indicators is that despite the best intentions sometimes, quantitative measures of performance cannot be established, for a range of reasons. For example IPART suggests storage evaporation losses as a performance standard or indicator for the capture and storage of water. Evaporation is primarily a function of storage, size, depth, volume stored and climatic conditions, all factors largely beyond the control and management of State Water. A record of evaporation losses from storages is a result, not a measurement of performance. (There may be exceptions to this statement, for example in the Menindee Lakes).

Murray Irrigation, as a requirement of its quality assurance accreditation has developed a set of key performance indicators, specific indicators have been developed at a corporate level and each section within Murray Irrigation has specific key performance indicators for their area. Murray Irrigation's experience is that identifying measurable indicators which are meaningful measures of performance in practice is not as straight forward as first expected.

Murray Irrigation recommends the performance indicators and standards proposed for State Water's operating licence are road tested for robustness and suitability by State Water using their Customer Service Committees.

Murray Irrigation's initial suggestions for potential performance indicators for State Water are described below. These indicators are suggested based on preliminary reading of draft SKM report on system performance standards and indicators for State Water (SKM 2004) and Murray Irrigation's expectations for performance.

Asset ownership and Total Asset Management Planning

Murray Irrigation understands that performance standards for dam safety will not be included in the operating licence because this area of State Water's operations is regulated by the Dam Safety Committee. Murray Irrigation notes, this aspect of

State Water's business is extremely important and must be properly regulated to avoid unnecessary risk.

Suggested performance standards for this area:

- State Water should comply with Dam Safety Committee recommendations.
- State Water should comply with the Water Management Works approval for assets issued by DIPNR.
- State Water should comply with the Total Asset Management Plan (TAMP).

Asset operations

Performance standards and indicators for asset operations are covered under water operations.

Routine operation and maintenance

- Planned operation and maintenance to be completed on time and within budget.
- No impact of routine operation and maintenance on water supply either timing or volume to water users and the environment.

Renewals activity

- Renewals expenditure to be completed on time and within budget.
- No impact of renewals activities on water supply either timing or volume to water users and the environment.

Compliance upgrades for dam safety, OH&S, environmental needs

- State Water to complete upgrades on time and within budget.

NSW Constructing Authority to the MDBC

- NSW to meet the requirements of the Murray Darling Basin Agreement and RMW.

Flow monitoring

- Quality assured flow monitoring data available to DIPNR and the public electronically.
- Monitoring network 100% functional 95% of the time.

Water operations planning

- Annual operations plan produced on time.
- Annual operating plan for the NSW Murray to be publicly released by 1st August each year.

Resource assessment, Allocation assessment, Allocation Announcements (Available Water Determination)

- Monthly water assessment and allocation announcements to be publicly available within three business days of the end of the month.
- In the case of the NSW Murray a weekly water assessment to be completed September to November inclusive where weekly rainfall in the catchment exceeds 25mm.

Supplementary water

- Supplementary water announcements made within four hours of the trigger for a supplementary water event being reached seven days a week.

Management of allocated water

- Monthly and 12 month reporting of the volume of water attributed as operational losses, losses to be described in MLs and as a percentage of the available resource.
- 100% compliance with end of system flow targets.
- Number of days restrictions apply to water users.

Water order management

- Water ordered versus water metered less than 10% discrepancy

Water use monitoring

- All water use for irrigation, industrial and towns to be metered by licence category.
- For meters that State Water does not have remote, electronic access to, meters to be read weekly, 12 months of the year.
- State Water to report quarterly on breakdown of meters and corrective action taken.
- Meters read within 24 hours of a supplementary water event finishing.
- Water use prior to the supplementary water event being announced based on the previous weekly reading, plus State Water's estimate of actual water diversions since the last meter reading and before the supplementary water event.
- Number of non-compliance cases recorded by State Water.

Carryover/Overdraw management

- Water accounts updated after each available water determination and each weekly meter reading.

Demand management

- Number of days licence holders access restricted reported by river sector and volume of restriction in MLs/day.

Bulk water transfers

- Number of days restrictions are caused by bulk water transfer rates.
- Megalitres of water stored water reduced because of bulk water transfers.

Drought contingency plan

- State Water to prepare a drought contingency plan by target date.

Flood operations

- 100% compliance with flood operations plans and manuals.

Storage Water Quality

- Water Quality information to be provided to DIPNR within 24hours of monitoring being completed.

Customer water account management

- Water accounts updated after each available water determination, weekly meter reading and each supplementary water event and the commencement or completion of an annual transfer, depending on whether the transfer is a sale or a purchase.

Temporary water transfers

Intravalley and intervalley NSW transfers

- 100% of correctly completed transfers to be processed within 24hours of receipt at State Water's offices.
- Customers with incomplete or incorrect transfers applications to be contacted within 48hours of receipt at State Water's offices.

The targets proposed by SKM for processing transfers consolidate the existing inadequate performance of State Water. For the last four weeks no annual transfers to or from Murray Irrigation's bulk licence have been processed by State Water because of the Customer Service Officer is on leave. This service is totally unacceptable and it would appear there is no penalty or incentive for State Water to change this situation.

Interstate transfers

- Correctly completed transfers to be processed within 24hours plus the minimum turnaround time for the other State.
- Customers with incomplete or incorrect transfers applications to be contacted within 48hours of receipt at State Water's offices.

Licence administration

- Accounts issue on time with 99% accuracy.

Environmental Water Delivery*

- Compliance with Environmental water delivery as determined by DIPNR
- Volume delivered to environment consistent with requirements under WSP.

4 What asset management requirements should be included in State Water's Operating licence?

State Water's assets are characterised by large, long lived infrastructure. Consequences from a major piece of State Water infrastructure failing are significant. State Water's operating conditions must ensure sufficient rigour of their infrastructure management activities to protect against infrastructure failure. The conditions in the operating licence must provide government on behalf of the community with the confidence that State Water's asset management programs will:

- Ensure assets are sufficiently maintained for their useful lives.
- Risk of failure is minimised.
- Long lived assets are refurbished where it is technically feasible and economically justified.

At the same time water users and hopefully government is concerned asset managers are not encouraged to take such a conservative approach to asset management that infrastructure costs are unnecessarily high and that State Water's infrastructure is either "gold plated," or is replaced prematurely.

Murray Irrigation also confronts the challenge of achieving the same balance with its own asset management program where decisions need to be made about when to replace or refurbish a piece of infrastructure. It is economically logical to delay major refurbishment expenditure, only up to a particular, but often unknown point where the chance of infrastructure failure becomes unacceptable.

Murray Irrigation supports inclusion of conditions in State Water's operating licence which ensure a rigorous but pragmatic asset management by State Water. Key principles in the TAMP should form the basis of any conditions in the operating licence. Features of the TAMP should include systematic routine inspection of infrastructure by State Water, as well as inspection by suitably qualified and independent engineers as part of an audit of the TAMP.

The standards set by the NSW Dam Safety Committee effectively minimise the public risk associated with the large dams and DIPNR should be cognisant of these standards when including conditions in State Water's operating licence, to avoid unnecessary and potentially costly regulation of State Water.

Murray Irrigation has also proposed that compliance with State Water's TAMP and Dam Safety Committee requirements should also be performance standard applying to State Water.

5 Environmental obligations

What potential environmental impacts of State Water's operations are not adequately regulated through State Water's broader regulatory framework?

Murray Irrigation supports the need for State Water to manage the storage and release of water consistently with the Water Sharing Plans and for compliance with Water Sharing Plans being a licence condition.

Murray Irrigation also supports State Water being responsible for providing fish passage and mitigating the impacts of thermal pollution, once a decision has been made through a consultative process, which includes State Water, the relevant government agencies, other community stakeholders to recommend these activities are implemented.

In the case of construction of fish ladders these activities should be able to be achieved through the normal consent conditions that will apply to State Water and the proposed MoU between State Water and DPI (NSW Fisheries).

Murray Irrigation recommends the Catchment Management Authorities (CMAs) in each valley should be responsible for managing a consultative process to determine the priority and importance of these two activities. With time and the opportunity to develop their skills and knowledge base CMAs and their associated Catchment Action Plans should be the vehicle for identifying the priorities and funding opportunities for these two activities and any other yet to be identified environmental activities State Water should be responsible for.

Care must be taken not to cast State Water's environmental responsibilities so broadly that it includes a large number of parameters that State Water is not able to control or manage.

The WSPs are a new statutory instrument, State Water as a State owned water manager is a new organisation. If the experiences of Murray Irrigation's privatisation are mirrored, the publicly available environmental accountability associated with water management will increase dramatically as a direct result of both corporatisation and the existence of the WSP.

Murray Irrigation recommends against additional environmental requirements being included in the first operating licence for State Water. This does not preclude inclusion of new and additional environmental requirements in the State Water next operating licence.

5.1 Requirements for State Water's Environmental Management Plan

What environmental performance indicators should State Water be required to report on?

It is commendable that State Water has considered its impact upon the greenhouse effect. However its prime role and its major effects relate to its management of water resources. Its efforts should be focused on managing and monitoring this impact.

Initially State Water should be required to report against the WSP rules for both water supply and environmental water management. This reporting should compare actual with the rules or targets in the WSP. A set of suitable targets for water supply to water users and the environment need to be developed for each WSP. Murray Irrigation believes it should be DIPNR's responsibility to measure the performance i.e. social, economic and environmental outcomes of the WSP, not State Water's. The performance indicators identified in section four (asterisked), environmental water delivery and dam upgrades for environmental purposes, should be included as part indicators of State Water's environmental performance.

5.2 Do any aspects of the MoUs between State Water and each of DEC, NSW Fisheries and DIPNR need clarification or strengthening?

Murray Irrigation's preference is for known activities State Water is directly responsible for to be included as part of State Water's operating licence because the operating licence conditions are a more transparent and accountable way of regulating State Water's activities.

Murray Irrigation has significant concerns with government propensity to use a MoU as the vehicle for describing the behaviour and activities and different organisations in relation to each other. Murray Irrigation believes the strength of any MoU is dependent on the willingness of **all** parties, including individual employees to abide by the terms of the agreement. As a regulatory or legislative mechanism they are ineffective.

Murray Irrigation's preference, in the case of State Water which is attempting to achieve a commercial focus and operational efficiency, is that the extent of State Water's involvement in any MoUs be minimised. However, Murray Irrigation recognises that the interconnectedness of State Water's activities with the environmental management and regulatory responsibilities of other government agencies make the MoU a useful arrangement for at least describing the actions, responsibilities and procedures each organisation will follow.

Without having seen the draft MoUs referred to by IPART Murray Irrigation cannot comment more specifically.

Murray Irrigation anticipates a number of DIPNR functions Murray Irrigation earlier recommended should be transferred to State Water from DIPNR would be covered in the MoU between State Water and DIPNR. Murray Irrigation encourages IPART to closely look at the activities in each MoU and as far possible aim to remove regulatory and operational overlap which will be further embedded by the MoUs.

IPART should also be cognisant of financial obligations imposed on State Water through the MoUs and that services provided by each organisation should be relevant to those paying the service fee. Murray Irrigation want to be assured that they do not subsidise DIPNR's WRM services provided to river pumpers that are funded through fees collected by State Water. Hence, the process should be transparent.

6 Customer obligations

6.1 What are important service related issues for State Water customers in addition to price, timely delivery of water, accurate maintenance of customer's accounts and provision of adequate and timely information for example interruption of water supply?

Important additional service related issues for State Water customers include:

- Timely and accurate available water determinations
- Prompt announcement of supplementary water events
- Minimisation of operational losses.
- Processing time for annual transfers approval.

6.2 Should customer service obligations be included in the initial operating licence for State Water?

Murray Irrigation has recommended a number of performance standards or indicators in the suite of indicators listed in section four. These standards are listed according the functions identified by State Water in their submission. Murray Irrigation does not believe it is necessary to have specific customer service obligations included in the State Water's operating licence. However Murray Irrigation believes it is necessary that the operating licence includes a range of performance standards or indicators which are measure parameters which are important to customers.

Murray Irrigation is less enthusiastic about the suitability of a customer satisfaction survey as proposed by State Water to measure customer service. Whilst customer satisfaction is important, measures of satisfaction are problematic for State Water as for any water supply organisation. For example greater emphasis on licence compliance by State Water will only increase the satisfaction of those licence holders who consider poor licence compliance an issue. Increased emphasis on demand management to reduce operational losses may reduce the water supply service to some licence holders, causing decreased customer service, but improving the operational efficiency of State Water.

Murray Irrigation advocates more direct measurement of the performance against targets as identified in section one to customer service surveys. The input of Customer Service Committees into locally relevant performance targets is required.

What customer performance standards and indicators should be included in the licence?

The inability of State Water to function as a competitive entity is highlighted by two examples in this report.

Indeed State Water comments that there are currently no incentives to increase water use efficiency.

*Currently State Water has **no specific regulatory driver for water efficiency**, and as it is unclear whether State Water may capture and retain the benefits of measured water efficiency savings, **there is no financial driver**. State Water meets its obligations by delivering water in accordance with the WSP. If however, State Water could accrue the benefits from increased water delivery efficiency, it would have an incentive to improve operational efficiency. The Initial Operating Licence should allow State Water to invest capital in order to accrue the benefits of water efficiency savings. Such a condition will deliver improved outcomes to the community and the environment.*

State Water 2004(a) pg 20

Also, on page 26 (State Water 2004(a)), 7.1, State Water cite an example where pricing restrictions derived by IPART lead to their failure to sponsor a project investigating decision support systems designed to improve customer service.

If these complaints were valid this would be a serious issue. The manner in which State Water describes these claims suggests their understanding of competitive markets is limited.

In a competitive market it is unusual to find a research project investigating new products or services funded by a levy on an existing product. Pioneering companies absorb the risk associated with research themselves and pay for the new product development via revenue generated through their ability to charge consumers a premium for the extra benefits of the new product or service once developed.

State Water should have financial drivers for investments that improve the efficiency and services of their business. Perhaps State Water should, after meeting the requirements of the WSP and the basic delivery standards defined by IPART, be able to offer consumers extra products that offer their customers a higher level of service. That is State Water deliver the standard defined service levels with a price determined by IPART but also offer customers extra features for whatever price the market will accept. In future determinations by IPART standard service levels could be revised to include these extra benefits- say after five years to reflect other competitive markets where premium services eventually become standard features. This could foster an environment of improvement for State Water, deliver their desired incentive for

improving service efficiency and provide a market and regulatory mechanism for improving service levels to all customers giving customers who will benefit from higher service levels more flexibility without penalising customers who do not.

The claim that State water has no financial drivers to increase water use efficiency is perhaps linked to their revenue hungry monopolistic view.

6.3 Relationship between State Water and its customers

Implications (if any) on State Water's relationship with regulated river customers of the fact that customers are created via access licences with DIPNR (eg, must State Water consult with DIPNR before taking certain action in relation to the customer?)

Murray Irrigation has previously recommended that responsibility for the functions relating to licence administration be delegated exclusively to State Water. Murray Irrigation is supportive of arrangements which strengthen the relationship between licence holders and State Water and which delivery accountability for licence compliance to State Water.

Murray Irrigation does not consider it necessary that State Water consult with DIPNR prior to taking action directly with water users for any issue that relates to water diversions.

6.4 Groundwater and unregulated licence holders

Should the initial operating licence for State Water include customer service obligations related to the services it provides to unregulated rivers and groundwater users who are DIPNR customers?

The service provided by State Water to unregulated rivers and groundwater users is limited in comparison with the activities involved with water supply and management to regulated river licence holders. However, what is most important is the institutional arrangements for administration of licence compliance of both unregulated and groundwater licences is strengthened and that **all** water use for irrigation is metered.

Murray Irrigation agrees with IPART that the services required for providing billing and metering services for these water users could adequately be specified in a contract between State Water and DIPNR. Murray Irrigation actually performs this service for deep groundwater users in the Murray Irrigation area of operation. It is not essential that the operating licence includes these activities. However, it is essential that billing and metering is undertaken rigorously.

6.5 Community Engagement Obligations

What is the most the most effective form of community consultation?:

- **Appropriate components of Customer Service Committee and Community Consultative Committee membership.**
- **Whether the State-wide CCC is an effective forum/vehicle for community consultation?**
- **Requirements related to community consultation that should be included in the Initial Operating Licence.**

Murray Irrigation supports the continuation of the valley based customer service committees whose membership encompasses a range of different licence types covering a wide geographical spread. Other interests should also be encouraged to participate in the Customer Service Committees such as the CMA. The committees should be required to operate by consensus. This discipline should encourage debate where there are contentious issues that impact differentially upon members.

However, the operation of these committees needs to be overhauled and improved to ensure they are able to provide State Water with useful direction and comment for regional State Water activities. The input of members also needs to be valued and recognised by State Water. Fundamental to an effective Customer Service Committee is providing members with access to information of sufficient detail for them to question and comment on State Water activities in their local region. The strength of the Customer Service Committee is that they include members who experience the day to day services which State Water provides. The type of information members expect to be available includes but is not restricted to:

- Water availability, resource update issues, including factors influencing supplementary water events
- Annual transfers, no processed, time to process, direction of sales
- Metered water use
- Water ordered versus metered water use
- River operation losses. Target versus actual
- Operating costs
- Capital costs
- Progress with implementation capital program
- Financials – valley based, budget versus actual

The Customer Service Committee should adapt State Water's key performance indicators to establish a set of performance indicators that measure the performance of State Water in the region. These indicators need to be useful to the management of State Water and also be useful measures for customers. Accurate and up to date performance reports should be available at meetings of the Customer Service Committee. Reports should be available for review prior to Customer Service Committee meetings.

6.6 State Wide Community Consultative Committee

Murray Irrigation does not support the establishment of a state wide CCC. Murray Irrigation does not believe that the creation of this committee will be an effective forum for providing strategic input on community issues to State Water.

Murray Irrigation supports the convening of biennial meetings of the Customer Service Committee chairs with State Water. Murray Irrigation also believes that potential CCC resources would be better allocated to improving the reach and effectiveness of Customer Service Committees and developing a website which covers a wide range of information about State Water activities. The website should also be an up to date portal for water availability information across NSW.

Significant opportunity exists to improve the extent of information about water management in NSW on the State Water website, which is currently embedded in the Department of Energy, Utilities and Sustainability site.

Before establishing any sort of community consultation program its role and objectives need to be clearly identified. Murray Irrigation is sceptical of the value such a large scale consultative program will bring to State Water.

Murray Irrigation supports the State Water's operating licence requiring State Water to establish Customer Service Committees and recommends no additional requirements for community consultation be included in State Water's initial operating licence.

Murray Irrigation considers numerous opportunities exist outside of consultative committees for State Water to seek community views on range of issues which do not depend on ongoing and expensive committees. Online feedback forms or phone interviews are possible examples.

However, the starting point, which Murray Irrigation does not believe IPART or State Water can adequately answer is; why consult? What does State Water aim to achieve? What are the expectations of participants? What does State Water intend to do with the information gathered?

7 Auditing

What is the most appropriate auditing and reporting approach for State Water (eg. a broader scope, fixed audit approach, or a risk management approach)?

What areas of State Water's operations should a more targeted approach focus on?

State Water should be required to produce an annual licence compliance report. Murray Irrigation supports IPART's suggestion that the first operational audit of State Water's new operating licence should be comprehensive and that a more targeted approach be applied based on the results of the first audit.

Reporting and auditing are an important tools for demonstrating performance and improvements of State Water, rather than focussing on how much an audit is likely to cost State Water should identify ways of reducing the costs of annual audits.

Priority areas for audit are:

- State Water metering and compliance functions,
- River operation,
- Asset Management.

8. Conclusions

The operating licence for State Water is an important instrument for improving the efficiency and performance of State Water. The licence combined with the bulk water determination has the potential to provide State Water with combination of incentives and disincentives to change their business practices and for water management in NSW to be more publicly accountable.

Murray Irrigation encourages IPART in this review to focus on State Water's principal functions the capture, storage and release of water. It is essential in the formative years of State Water, the organisation and its staff have explicit performance targets for water management which State Water have the capacity to manage.

9. References

MDBC 2003, Annual Report 2002-2003, Murray Darling Basin Commission.

IPART 2004(a), Review of Operating Licence for State Water Corporation, Independent Pricing and Regulatory Tribunal, September.

NSW 1991, *Protection of the Environment Administration Act 1991 No 60*.

NSW 2004, State Water Corporation Act 2004 No 40.

SKM 2004, System Performance Standards and Indicators for State Water Corporation, Draft B, Sinclair Knight Mertz, November.

State Water 2004(a), Response to IPART issues paper on the review of the Operating Licence for State Water Corporation.

Appendices

A1 Murray Irrigation Limited

Murray Irrigation Limited is an unlisted private irrigation company in southern NSW owned and managed by its primary customers, irrigator shareholders. It is Australia's largest private irrigation company. The company supplies irrigation water and drainage services to over 2,400 farms owned by 1,600 family farm businesses in the southern Riverina. Each irrigator is a company member and shareholder with shares allocated one per megalitre entitlement. 10 shareholder elected directors manage Murray Irrigation, eight of whom are irrigators representing traditional geographical irrigation districts.

Murray Irrigation is closely linked to government through its licenses. Murray Irrigation holds an Irrigation Corporation Water Management Works Licence with the Department of Infrastructure Planning and Natural Resources (DIPNR) and an Environment Protection Licence through the Department of Environment and Conservation (DEC). Consultation with DIPNR and the DEC is very much a part of Murray Irrigation day to day operations to ensure both licence compliance and improvement of Murray Irrigation's operations.

MDBC assets are used to regulate Murray Irrigation's bulk water supply. The annual water available to Murray Irrigation is determined by DIPNR according to DIPNR's Annual Allocation Plan. MDBC's water resource assessment is the basis of the announcement and is fundamental to it.

Murray Irrigation has access licences for general security, high security, local water utility, conveyance and a supplementary water licence. Murray bulk water licence is for a total of nearly 1.47 million entitlements, which is 68% of the NSW total entitlements and 75% of NSW general security entitlements. Murray Irrigation daily diversions are the single largest NSW water diversion from the Murray River. Murray Irrigation provides daily diversion data to State Water who subsequently provide this information to RMW.

3170 megalitres of Murray Irrigation's 1,479,032 megalitre bulk entitlements are high security town water entitlements. The remainder are NSW general security entitlements, which provide a share of the water resource available from year to year after base river flows, high security, and environmental allocations have been provided for.

Murray Irrigation Limited diverts water from the Murray River at Lake Mulwala via the Mulwala Canal off-take. Gravity drives the water via 3600 kilometres of earthen channel to 2,416 landholdings with a total area of 748,000 hectares, as well as town water supplies for eight communities.

A2 State Government charges paid by Murray Irrigation

Murray Irrigation pays State Water the bulk water charges as determined by IPART. In addition each year the company pays DIPNR a fixed licensing fee of \$93,000 and an annual variable licensing fee. This licensing fee is to fund DIPNR staff costs involved in reviewing Murray Irrigation's Annual Environment Report. DIPNR's annual variable licensing fee was \$50,150 in 2000/01, \$52,658 in 2001/02 and \$52,500 in 2002/03. This report is freely available online at www.murrayirrigation.com.au

A3 Murray Irrigation Environmental Compliance

Murray Irrigation's Environment & Compliance Report is submitted and formally scrutinised annually by DIPNR, DEC, MDBC and NSW DPI as part of the Company's licensing and LWMP implementation requirements.

Water Quality

Murray Irrigation is required to monitor and manage stormwater discharged from our drainage network in line with our Environment Protection Licence. Murray Irrigation's drainage network discharges water via 15 escapes into the river system.

15 sites including all drainage escapes are monitored continuously for surface flow and salinity and monitored monthly for turbidity, total nitrogen and total phosphorous. A pesticide monitoring program runs from October to December. Continuous monitoring equipment is maintained by Theiss Environmental Services in line with AS3778/ISO772 standards. All sites are connected to radio telemetry allowing remote daily monitoring of discharged flow volume and salinity levels. Each site is visited weekly to check gauge heights with samples taken if necessary.

A chemical contingency plan is in place to manage the impacts of chemical contamination.

Collected samples from drainage networks are analysed at our NATA accredited laboratory providing rapid identification of water quality and prompt responses if necessary. This enables Murray Irrigation to comply with requirements of the Environmental Protection Licence and the environmental conditions of the Water Management Works Licence. Landholders also access the laboratory to comply with our Stormwater Disposal Policy and Rice Growing Policy.

Our Storm Water Disposal Policy stipulates that individuals looking to pump stormwater back into our channels meet strict compliance measures involving water quality testing first.

The high level of control that Murray Irrigation has over its drainage system provided by control inlets enables us to monitor and enforce compliance with licencing requirements from landholdings.

Water quality is reported on annually in our annual environmental compliance report.

Soil Health

Murray Irrigation also actively monitors soil health parameters including, salinity, sodicity and organic matter twice a year across the region. The monitoring program helps to identify changes and guide management of these potential problems.

Murray Irrigation is also involved in a number of research and development projects designed to improve and evaluate soil management practises.

Salinity Management

Murray Irrigation maintains monitors and reports on information about water tables and salinity from a network of 1,500 piezometers within its region.

Murray Irrigation' Total Farm Water Balance policy governs on farm water use. It is designed to reduce accessions to the ground water table, increase water use efficiency and foster best practise irrigation management. Based on CSIRO research, the policy limits water use intensity to four ML per hectare. If landholders have implemented best management practices then this may be increased to six ML per hectare. Penalties apply to those who exceed these limits. In 2003/04, six landholdings were found to exceed water use intensity limits and penalties were enforced.

Murray Irrigation shareholders contribute 70% to the operational costs of the Wakool-Tullakool sub-surface drainage system with the remaining 30% provided by Government. This system pumps highly saline ground water into surface evaporation basins lowering water tables, reducing saline discharge into rivers and protecting approximately 75,500 hectares of land from salinity. Funding is collected via a levy on water use by all Murray Irrigation shareholders. Those who benefit most from the project contribute more than those less affected.

Rice Policy

Murray Irrigation's rice growing policy is aimed at improving water use efficiency and reducing seepage into the water table.

A3.1 Murray Land and Water Management Plans (LWMPs)

Murray Irrigation is the implementation authority for the Murray LWMPs that were endorsed by the NSW Government in 1995. These plans are an integrated natural resource strategy. Their objectives are to achieve sustainable agricultural

productivity, protection and enhancement of regional natural biodiversity and a stable community.

Key features of this project to date have been:

- On farm works to increase water use efficiency, reduce recharge, introduce water recycling, native vegetation management and nutrient and pesticide management.
- Channel seepage control works
- Surface and subsurface drainage
- Monitoring of key environmental indicators
- Community and landholder education
- Research and development

Since implementation of the Murray LWMPs began in 1995 government investment has totalled \$59.8 million and landholder investment has totalled \$285 million.

A3.2 Murray Irrigation: Beyond Compliance

Murray Irrigation holds strong and positive working relationships with community and government groups.

Key projects include:

- Partnering with the NSW Murray Wetlands Working Group in a project to water wetlands on private property
- Working with IPART to develop a proposal to provide managed floods for the NSW Koondrook-Perricoota State Forest
- A project in conjunction with NSW fisheries to investigate and encourage investment in sustainable and economically viable aquaculture using saline groundwater.
- A project to build and manage a 30,000 ML offline storage to enable greater flexibility in the management of water resources and reduce the chance of ecologically destructive summer flooding of the Barmah-Millewa Forest.
- Seed collection for Murray Indigenous Seeds Service to provide seed for re-vegetation programs.

These projects are part of our commitment to working constructively with stakeholders at all levels to provide for the responsible use of water and protection of the environment. Through such efforts we aim to contribute to balanced and fair solutions to current water resource sharing and environmental issues. They all involve considerable resource inputs by Murray Irrigation which Murray Irrigation provides at cost if not at a subsidised rate.

The success of Murray Irrigation's implementation of positive environmental initiatives each year in part can also be attributed to the systematic documentation and reporting within our Annual Environment Report. In depth descriptions about the above environmental programs are available within this report. This report is publicly available for download at www.murrayirrigation.com.au.

A4 Murray Irrigation Water Resource Management Network

Murray Irrigation infrastructure is utilised by State Water in their management of water deliveries to downstream locations. The Barmah choke restrictions limit water deliveries from Yarrowonga weir to roughly 10,000 ML per day. Flows greater than this flood the forest which may have unwanted ecological consequences for the forest particularly in summer and also increases operational losses. By utilising Murray Irrigation infrastructure State Water can and routinely does divert up to 3,350 megalitres per day or 24% of downstream flows around the forest. In addition, diverting water via the channel reduces flow travel time and river losses.

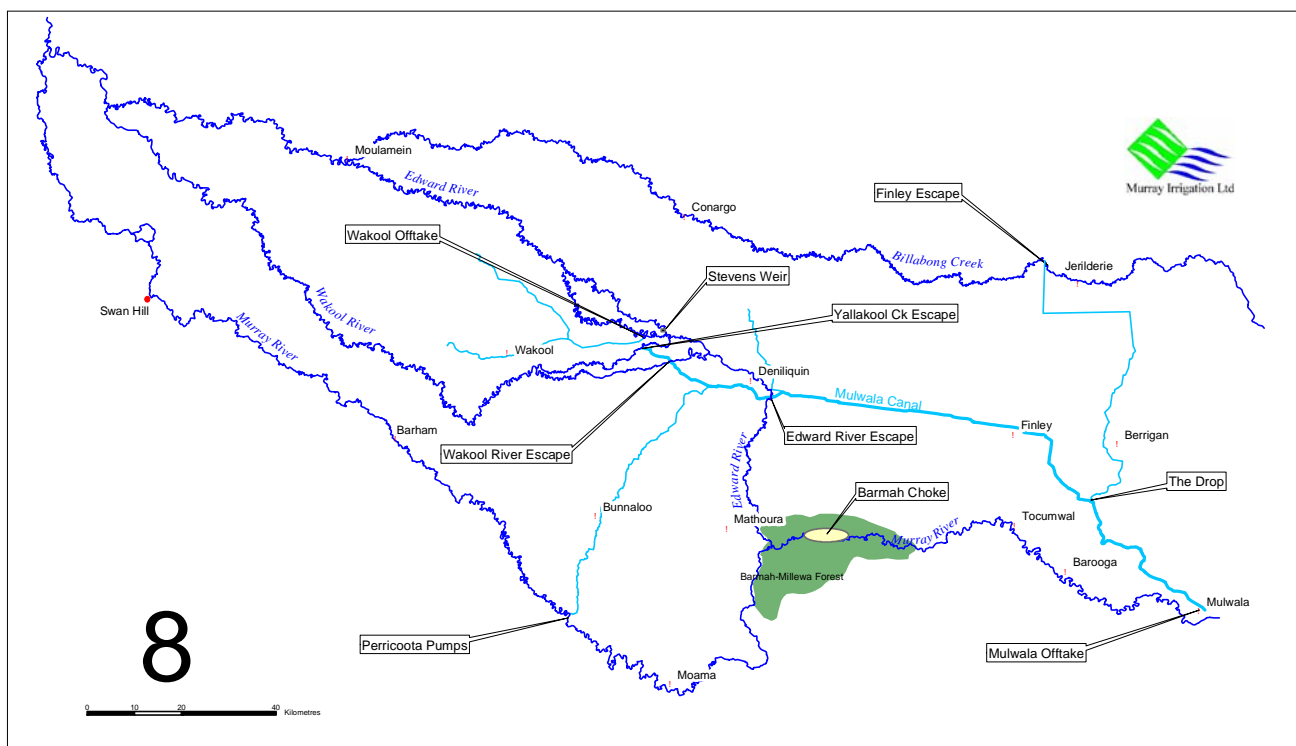


Figure 2: Murray Irrigation network in relation to the Murray River system.

Escape	Seasonal escape volume (MLs)		
	01/02	02/03	03/04
Edward River	378,621	447,607	307,248
Finley Escape	24,656	22,029	27,000
Wakool River	23,318	85,983	28,061
Yallakool Creek	3,637	9,467	2,649
Perricoota			3,761

Escape			
Tuppal Creek			1,122
Total	430,232	565,086	369,841

Table 1: Water diverted by Murray Irrigation for State Water through its escapes into the river downstream of the choke.

Figure 2 shows how Murray Irrigation infrastructure is placed to enable diversions of water around the choke. Water delivered to the Billabong Creek via the Finley escape is to supplement irrigation use for river pumpers in that system.

In the 2002/03 severe drought year utilising Murray Irrigation infrastructure for water delivery to South Australia was particularly important. This arrangement was initially established as a temporary measure to deliver water to South Australia as a short term solution. Now it is a regular occurrence.

New infrastructure has been specifically constructed in order to increase capacity to cater for this need and Murray Irrigation provides management and operator time to complete this function.