



FM05/401

Bulk Water Prices from 2004/05
Independent Pricing and Regulatory Tribunal
PO Box Q290
QVB Post Office NSW 1230

Attention: Mr Nigel Rajaratnam

Dear Sir/Madam

RE: REVIEW OF BULK WATER PRICES FROM 1 JULY 2005.

This letter is a formal submission in response to the above review, the submissions from the State Water Corporation (SWC) and the Department of Infrastructure, Planning and Natural Resources (DIPNR) and the Marsden Jacob Associates and Cardno MBK report on the review of the capital and operational expenditure in SWC's submission in relation to the setting of bulk water prices from 1 July 2005. The Department apologises for the delay in providing this submission, which was due to the late public release of the final report by Marsden Jacob Associates and Cardno MBK, the recommendations of which are directly relevant to the Department's portfolio of responsibility in relation to fish passage and are referred to in this submission.

From the 1 July 2004 the Department of Primary Industries was formed to oversee the delivery of sustainable primary industries. The Department of Primary Industries brings together the former departments of NSW Agriculture, NSW Fisheries, Department of Mineral Resources and the Public Trading Enterprise responsible for the sustainable management of public native forests and plantations, formerly known as State Forests of NSW. The Government's priorities for the new Department are to:

- Foster profitable and sustainable primary industries in NSW;
- Support NSW primary industries in maintaining their international competitive position;
- Increase collaboration with industry and other research bodies to convert research findings into innovative technologies and practices for NSW primary industry operations;
- Assist primary industries to wisely manage natural resources;
- Promote a safe working environment within NSW primary industries from a human, mine safety and biosecurity perspective; and
- Improve service delivery to the community, stakeholders, farmers, fishers and industry by providing responsive, value for money and efficient government services.

The setting of bulk water prices provides a major opportunity to ensure that all costs and benefits associated with the provision of bulk water are given due consideration. In particular, the Department is interested in ensuring that costs for environmental

compliance associated with water management are genuinely considered and reflected in bulk water prices.

As part of its role, the Department is responsible for regulating the operations of SWC and DIPNR under the *Fisheries Management Act 1994* (FM Act). This relates to the construction of new assets or works and the maintenance and upgrading of existing assets and works in accordance with SWC's Total Asset Management Program (TAMP) for regulated structures and DIPNR's unregulated river structures via their capital works programs. Such works can trigger legislative requirements for concurrence under Parts 7 and 7A of the FM Act for the protection of aquatic habitats, restoration and/or maintenance of fish passage and management of listed threatened fish species, populations, ecological communities or critical habitat respectively.

The "installation and operation of in-stream structures and other mechanisms that alter the natural flow regime of rivers and streams" has been listed as a "key threatening process" under the FM Act as the impacts of river regulation has been identified as a major threat to aquatic biodiversity and the survival and recovery of several listed threatened fish species, populations and ecological communities under the Act. The Department is responsible for developing a threat abatement plan to target resources and activities to reduce this threat and is also responsible for ensuring that threat abatement is a consideration of developments and activities relating to river regulation in NSW.

Response to Marsden Jacob Associates and Cardno MBK Review of Capex, Asset Management and Opex of SWC and submissions from SWC and DIPNR

The Department notes and strongly objects to recommendations 105 and 106 in the above report by Marsden Jacob Associates and Cardno MBK. It is disappointing that the consultants failed to consult with the Department on fish passage and cold water pollution management issues, even though the Department is responsible for regulating fish passage activities within NSW. Detailed comments on fish passage and cold water pollution in response to the recommendations, and the SWC and DIPNR submissions, are provided below.

Fish Passage

In relation to recommendation 105(a), the Department has had in place a Memorandum of Understanding (MOU) with SWC since 2002, which extends for a three-year period and is reviewed annually by both parties. The MOU outlines the mutual obligations of both parties in ensuring that SWC's operations and TAMP are conducted in accordance with the requirements of the FM Act. The two parties also work together to achieve broader, strategic and cost-effective environmental outcomes beyond the requirements of the FM Act associated with the implementation of the TAMP, where possible. This has included riparian vegetation rehabilitation works and resnagging to improve in-stream fish habitat values and willow control programs associated with SWC's asset management program, which have benefited both the community and customers.

A key component of the MOU is ensuring that the Department works closely with SWC to minimise impacts on fish, aquatic habitats and threatened fish species, populations and ecological communities associated with in-stream works and to address fish passage at in-stream dams, weirs and regulators, where triggered as a

compliance requirement under s.218 of the FM Act. This section of the Act states that “a public authority that proposes to construct, alter or modify a dam, weir or reservoir on a waterway (or to approve of any such construction, alteration or modification): (a) must notify the Minister of the proposal, and (b) must, if the Minister so requests, include as part of the works for the dam, weir or reservoir, or for its alteration or modification, a suitable fishway or fish by-pass.”

‘Modify’ is interpreted by SWC to apply to works which result in the modification of the flow regime (eg height/depth, frequency, duration, velocity, flow path direction), water quality and in-stream or riparian zone habitat values, including fish passage. The Department is currently working with State Water to further refine this policy position to remove ambiguity in relation to the application of this section of the FM Act for both major and minor refurbishment works. The aim of the revised policy will be to better target limited resources to achieve strategic fish passage outcomes as part of SWC’s asset management program.

The Department renewed the MOU with SWC in June 2004 for a further three years and following the recent annual review of the MOU in November 2004, a revised MOU commenced on 1 January 2005 which includes, for the first time, performance indicators to monitor SWC’s environmental performance in relation to fish passage and other aquatic habitat and riparian rehabilitation activities where related to the implementation of the TAMP and to the requirements of the MOU.

Under the MOU a Liaison Officer is employed by the Department to work exclusively with SWC to ensure compliance with the MOU. The Liaison Officer is the first point of contact for all regional SWC staff on works that may trigger the FM Act and to provide consistent input on fish passage requirements. This has ensured that consistent advice is provided for the planning, design and construction phases of environmental compliance works to meet the Department’s fish passage design requirements.

A key concern identified by both parties under the MOU is ensuring that fish passage works are targeted strategically, rather than driven purely by achieving regulatory requirements at a particular site. As noted in SWC submission under s.4.8.8.2, the Department and SWC are undertaking a catchment assessment and prioritisation process for both regulated and unregulated structures, building on previous work undertaken by both agencies under the NSW Initial Weir Review process. The aim of the assessment will be to identify on a strategic statewide and valley by valley basis those dams and weirs (private and public) which are of highest priority for remediation of fish passage to improve native fish population and threatened fish species recovery. The outcomes will be used by both parties to determine where regulatory requirements for fish passage, triggered under s.218 of the FM Act, can best be targeted for fish passage outcomes. This may include undertaking fish passage works at a different asset, which is of greater priority, rather than at the asset which triggered the regulatory requirement. The outcomes will be reflected in the next SWC TAMP pricing submission after consultation with the relevant Customer Service Committees.

The results of the assessment will be used as the basis for future decision-making on improvements to fish passage and will be included in the environmental performance monitoring and annual reporting process under the MOU.

In response to Marsden Jacob Associates and Cardno MBK's concerns with defining protocols for fish passage, the design and construction of fishways aims to achieve key design and performance criteria which pass 95 per cent of fish species (ranging in size from adults to juveniles) over 95 per cent of flow classes. This protocol has been in place since 1985. In the majority of instances for SWC weirs, the proven design for NSW rivers is the vertical slot fishway design which can achieve these criteria. Monitoring from recently constructed Murray River fishways indicates a broader suit of smaller and slower swimming species utilising this fishway type emphasising the need to use the most conservative vertical slot designs. However, the cost of these fishways is high and the Department is working with SWC and others to test the efficiency of lower-cost engineering and construction solutions to not only reduce installation costs, but also ongoing management and maintenance cost requirements to meet the fish passage performance criteria.

The Department is pursuing this outcome in a number of ways:

- As part of the Lake Hume to the Sea Tri-State Fish Passage program significant design modifications are being trialled at the Lock 8 Fishway on the Murray River which, if successful, will greatly reduce the cost of vertical slot fishway construction.
- At Balranald Weir a new Deelder Fish Lock fishway has been successfully trialled and is currently undergoing automation. The Deelder Fish Lock is suitable for installation at approximately 30 of the larger weirs with non-functional fishways at significantly lower costs than vertical slot designs.
- At Duck and Crooked Creek Regulators in the Macquarie catchment alternative fabrication techniques were trialled in the construction of a rock ramp fishway design.
- Research funding has been provided to the University of New England to assess the efficacy of a modular fishway design.
- At Euston fishway denil fishway inserts have been placed inside an existing fishway. The site is being monitored by the Department to ascertain slope gradients that may be suitable to build fishways of this type. This insert was on a 1:6 slope as opposed to a typical 1:20 slope of vertical slot fishway designs. Massive cost savings are likely if this proves successful.

The Department notes concerns raised in the Marsden Jacob Associates and Cardno MBK report regarding changes in fishway design and that many existing fishways are of a dated design which SWC has been advised need to be upgraded to modern standards. Fishways built prior to 1985 on approximately 30 of SWC structures were built in accordance with European fish passage standards at the time. Since their construction further research on the requirements of native fish passage has determined that their swimming characteristics and flow velocity requirements differ significantly from European species and the best practice vertical slot fishway for native fish passage has been used in NSW since 1985. The only changes to fish passage design proposed by the Department currently are to move to newer lower cost options, where possible alternatives to a vertical slot design can be achieved to assist SWC to deliver better economic efficiencies.

It is worth noting that the regulatory requirement to replace or upgrade existing fishways is only triggered if there are major modification or upgrade works planned at the weir site, or at another SWC structure where the offset would be better targeted at the existing fishway site to achieve the most strategic fish passage outcome. As noted above, the Department is working with SWC and other partners to look at low

cost options to retrofit existing fishways in such instances, rather than replace them with a vertical slot fishway design.

The discharge of SWC's obligations is clear under the MOU and is related to compliance with the FM Act when major modification or upgrade works in accordance trigger a fish passage requirement. Consultation is undertaken by SWC with the Department and the relevant Customer Service Committee or Community Reference Panel (established for major upgrade works) to determine the fishway design and costing requirements. Once the fishway is designed and constructed in accordance with these requirements, fish sampling is undertaken to ensure that the design is functioning in accordance with the agreed fish passage performance criteria. Once this is determined, the obligations of SWC are discharged in meeting s.218 of the FM Act. The only ongoing requirement on SWC is to maintain the fishway in working order in accordance with its structure maintenance programs.

In conclusion, the Department therefore does not support recommendations 105 and 106 in Marsden Jacob Associates and Cardno MBK's report that SWC is not provided explicit information on the requirements to meet its regulatory obligations and to know when these have been discharged and to defer expenditure on fishways. These are defined within the MOU and are reinforced by the provision of consistent verbal and written advice to SWC staff by a dedicated Liaison Officer. The Department also disputes the statement that "difficulties arise for State Water because a project by project approach to addressing fishway issues is taken, which appears to be influenced by differing approaches of regional DPI officers". The two agencies have ensured that consistent advice is provided to all SWC staff through the provision of a dedicated DPI Liaison Officer and agreed protocols are followed in line with the MOU. The Department has ensured that regional DPI officers do not deal directly with SWC staff to avoid such instances from occurring and to improve the level of technical expertise and service delivery to SWC on fish passage issues. The Department recommends that IPART review the last two annual reports produced under the MOU by the two agencies which clearly outline the effective delivery of fish passage outcomes at SWC owned structures.

SWC Submission

The Department notes that the proposed environmental compliance costs within the TAMP for SWC include the joint agreed priorities for works for fish passage on 11 weirs in the short-term including the design and construction of six new fishways and the retrofitting or upgrading of existing fishways on five weirs. Such costs were not previously incorporated into the TAMP for the 2001 pricing determination.

Recent research also indicates that off-channel regulator works can have a significant impact on fish passage. Works to reduce the impacts of off-channel regulator works will also need to be planned. However, there are no identified omissions from the proposed TAMP costings agreed to by the two agencies in this regard.

SWC's submission notes concerns with changes in project costs associated with meeting regulatory compliance upgrades (pages 21-22). The concerns raised are real due to the differences in the design of each dam and weir and the need to match fish passage technology to achieve effective environmental outcomes within cost constraints. As noted within this submission, technology for fish passage rehabilitation is an evolving science where low cost engineering solutions are

currently being tested to replace the existing high cost vertical slot design, where possible. Cost estimates for programmed fish passage works can be subject to change for the following reasons:

- The initial cost estimates included in the TAMP may be an estimate of the capital expenditure at the time the TAMP is drafted, but often does not factor in the required contingencies to cover the planning, design, construction and assessment of the fishway to ensure it is operating in accordance with the design criteria.
- Actual costs of the fishway cannot be fully defined until final designs are completed and tenders submitted to complete the works.
- The type of weir dictates the fishway solution that can be applied and the constraints to its operation that need to be addressed in the final design (eg flows, supply to water users, hydro-electricity development constraints, location of the fishway etc).
- Opportunities for environmental compliance are often pursued by SWC as part of dam security upgrades or enhancements (see p.57 of SWC submission) and these costs for compliance infrastructure cannot be determined until the main features of the upgrade are decided.

The Department does not support the statement on p.22 of State Water's submission that the "parameters applied by regulators for environmental compliance are frequently subject to change" and that it may rely on the "application of new or relatively untested technology" for the reasons outlined above in response to the Marsden Jacob Associates and Cardno-MBK's report. As noted above, the Department is taking a conservative approach to fishway design by requiring vertical slot fishway technology to be used at the majority of SWC weir sites as this technology has been tried, tested and proven effective since 1985 in NSW. Experimental work on low-cost engineering alternatives is taking place at three SWC-managed structures that lend themselves to experimentation and the experimental technology is not being applied elsewhere until it has been proven effective in meeting the design criteria for fishways in NSW.

However, the Department agrees that SWC has limited ability to influence changing project costs to meet fishway design criteria on a site-by-site basis and the Department supports a more flexible approach to managing long-term asset management costs, as proposed in SWC's submission.

The Department supports statements made in SWC's submission on page 33 (section 3.3.4) regarding the proposed cost sharing arrangements for environmental compliance costs associated with fish passage. The proposed cost sharing arrangements are adequately linked to the legislative requirements and the share of the benefits to the beneficiary in each instance.

In relation to the management of the regulated structures on the minor coastal valleys (p.42) the Department supports strategies proposed by SWC to improve cost recovery options by aiming to achieve cost recovery in the short-term or to move to "modify the level of service, decommission or find alternative uses for the assets". These options are in keeping with the NSW Government and the Council of Australian Government (COAG) principles for full cost recovery of water pricing, which are also reflected in the National Water Initiative. The third option also allows alternatives for service delivery to be explored. Such an assessment should assist in better defining "who pays" for the ongoing management of these structures.

DIPNR's Submission

The DIPNR submission notes that full cost recovery is yet to be achieved for the unregulated and groundwater systems. With the corporatisation of State Water, DIPNR has retained the management of the unregulated river infrastructure (ie weirs and regulators) within their management. Their submission notes that no capital expenditure has been incorporated for the interim pricing period proposed for the next 12 months from 1 July 2005. This is of particular concern to the Department as the interim pricing period will provide no ability to recovery costs for environmental compliance works associated with fish passage at these structures, if triggering s.218 of the FM Act.

The Department has been working closely with SWC who have assessed and prioritised the unregulated structures for action as part of a further detailed weir review process, while they still managed these structures. This process has identified a number of redundant structures that can potentially be removed, particularly within the coastal catchments, and several that require fishway installation to reduce their current impacts on fish passage, particularly on the Barwon-Darling River. The Department is concerned to ensure that the required environmental compliance works on these structures are reflected in DIPNR's medium term and future submissions.

Of key concern with the unregulated river structures is that many of these structures have limited water users benefiting from their retention and a number are considered 'dead' or redundant assets to DIPNR and SWC. A detailed program is needed to determine how these assets are to be owned, managed, decommissioned or retrofitted to address fish passage if retained in situ and the cost recovery options for the program. This should be incorporated into DIPNR's medium pricing submission.

DIPNR's submission also notes that capital expenditure on unregulated river structures was included as 'water delivery' rather than 'water resource management' costs in the 2001 determination. It notes that DIPNR intends to review their recovery through water resource management charges in the medium term submission. The Department's view is that capital expenditure costs on unregulated river structures to meet environmental compliance requirements (eg weir removal or fish passage via the installation of fishways) should be recorded and treated as unregulated capital expenditure environmental compliance costs for cost sharing purposes in the water resource management capital expenditure costs.

Cold Water Pollution

Cold water pollution is identified as one component of the key threatening process "installation and operation of in-stream structures and other mechanisms that alter the natural flow regime of rivers and streams", listed under the FM Act. Cold water pollution has been estimated to affect over 3,000 kilometres of NSW regulated waterways and has been shown to inhibit fish breeding cues, reduce growth rates and survivability of juvenile fish and has resulted in the loss of native fish populations below several key storages in NSW.

In relation to cold water pollution management, it is disturbing to note that the consultants, Marsden Jacob Associates and Cardno MBK, at no time consulted with the Department or other relevant State agencies involved in the management of cold

water pollution to discuss previous work undertaken and to find out more about the existing management strategy. In particular, many of the concerns raised regarding “protocols” and “public consultation” could have been discussed and potentially resolved. Of particular concern is their naïve view that “one size fits all” protocols can apply to the complex issue of cold water pollution to define when SWC’s obligations are met.

In relation to recommendation 106, to defer expenditure on cold water pollution for another two years, the Department notes that expenditure on cold water pollution by SWC has already been deferred for many years as the NSW Government undertook a review of a range of factors influencing its cost-effective management, via an interagency working group of Water Chief Executive Officers. The NSW Government’s cold water pollution management strategy has been developed in response to a number of studies commissioned by the Department and this group to strategically define the issue and outcomes required, which involved:

- the assessment and prioritisation of dams and weirs to determine those that were of highest priority for capital and operational expenditure requirements. This resulted in the identification of only 26 out of 3000 structures that are of highest priority for action, significantly reducing the scope and focus of the problem. Of these, 12 are SWC assets with seven identified as high priority and a further five as medium priority for action.
- reviewing a series of low cost engineering solutions that could be applied to the State’s largest dams, in particular focusing on Burrendong Dam as a test case. These studies have determined a potential capital expenditure option of a submerged curtain for this dam that is significantly cheaper (approx. ten times cheaper at \$2M) than a multi-level off-take tower option that was originally proposed and costed by SWC (ie approx. \$20M).

These studies have allowed the NSW Government to develop a conservative, targeted approach to addressing cold water pollution based on the review and assessment of 5-yearly incremental action plans.

The management strategy incorporates an initial 5-year action plan to implement a low cost innovative engineering solution trial for Burrendong Dam, capital works at Keepit Dam (already scheduled as part of the dam safety upgrade) and works at Jindabyne and Tallowa Dams (non-SWC structures where major capital expenditure works are already scheduled) and the implementation of improved operating protocols for the priority dams that already have selective off-take capability to manage cold water pollution which isn’t operating as effectively as it should (Pindari, Glenbawn, Glennies Creek, Windamere, Split Rock and Chaffey). These works have been factored into the SWC TAMP submission.

Proposed minor amendments to the *Water Management Act 2000* will allow DIPNR to call up those dams that are included in each 5-year plan of works and direct them to undertake works to manage cold water pollution. Water quality improvement target levels will be defined as part of the works approval at each dam site once the potential engineering solution options and likely water quality outcomes are negotiated between the Government, water users (via the Customer Service Committees) and the dam operator in order to achieve cost-effectiveness of design whilst balancing other service delivery requirements.

The 5-yearly incremental programs of investigation and works are agreed between the Government and dam operators in accordance with the longer term program,

taking into account asset management and upgrade priorities, new technologies, cost sharing arrangements and budgetary constraints. Provision of a 5-yearly review and stocktake provides dam operators and Government the flexibility to amend the program for example by removing structures that are no longer causing cold water impacts as the works and protocols have been implemented in accordance with their works approval, or adding structures that have been identified as causing severe cold water impacts (eg dams that alter their operations in ways that affect the severity of their cold water impacts). The staged programming of works also takes account of relevant determinations by the Independent Pricing and Regulatory Tribunal on cost-sharing arrangements. It also allows the NSW Government and the dam operators to learn from the solutions applied and protocols developed during each 5-year planning process and then to build on those lessons learned to improve the cost effectiveness and outcomes over time. The recommendations for works will reflect the assessment and balancing of ecological need, operational feasibility, budgetary impacts, affordability and cost-effectiveness and any synergies with dam safety or other upgrade works programs.

The NSW Government's management strategy also notes that the operating and management protocol for each dam will need to be tailored due to the infrastructure present, the types of engineering solutions that can be effectively applied and the target water quality outcomes to achieve in balancing both temperature with blue green algae and water supply delivery requirements. This flexibility was built into the strategy to ensure that the requirements on SWC and the other major dam owners in NSW were not onerous by being prescriptive in terms of defined generic temperature targets to be met at each site, so that cost effective outcomes are sought and water quality improvements are balanced against other needs.

The Department therefore does not support the further deferral of action to address this significant ecological issue which continues to threaten the recovery of native threatened fish species in NSW. The NSW Government's management strategy conservatively allows for incremental works programs to be achieved over the long-term and is not onerous in its expectations on SWC in requiring capital expenditure on only two of its 12 priority structures causing severe cold water pollution and to improve operating protocols at existing dams which have cold water pollution management devices in place over the next five years. Further deferral is not likely to result in any changes to the current management arrangements recently approved by the NSW Government which have been developed in response to considerable study and investigations to date to limit cost impacts on dam operators and the NSW Government.

In relation to recommendation 105(b), regarding the need for public consultation with key stakeholders on the proposed protocols, SWC already has an effective process of consultation on any proposed major capital expenditure works through its valley-based Customer Service Committees and Community Reference Panels, which are established for major upgrade projects, such as cold water pollution management. The state agencies are represented on Community Reference Panels to discuss regulatory and policy requirements with customers. The Panels are responsible for assessing the upgrade proposals and make recommendations to the Board of SWC on the way the upgrades are to be progressed and the socio-economic and environmental outcomes to be achieved as part of the upgrade program. This can include required water quality improvements to be achieved in order to meet the community's needs and regulatory requirements. The Department therefore does not

support recommendation 105(b) as it is a duplication of existing consultation processes with relevant stakeholders that are working satisfactorily at present.

Should you have any further queries, or would like to arrange a meeting to further discuss this submission, please contact Mrs Sarah Fairfull, Principal Manager (Habitat) on (02) 6686 2018, or 0419 185534.

Yours sincerely

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DIRECTOR, FISHERIES MANAGEMENT