Hawkesbury-Nepean
CMA CATCHMENT MANAGEMENT AUTHORITY

Mr James Cox
Chief Executive Officer
Independent Pricing and Regulatory Tribunal
PO Box Q290
QVB Post Office NSW 1230

HNCMA-06-0040

Attention: Ms Kate Drinkwater

Dear Mr Cox,

Review of Pricing Arrangements For Recycled Water And Mining For The Metropolitan Water Agencies

The Hawkesbury-Nepean Catchment Management Authority (the Authority) has previously made submissions to the Tribunal on a range of issues including:

- Metropolitan and Bulk Water Pricing, and
- Investigation into Water and Wastewater Service Provision in the Greater Sydney Region, and
- The Burden of Regulation in NSW and Improving Regulatory Efficiency'

This submission has been prepared for the Tribunal's current inquiry into pricing arrangements for recycled water and sewer mining operation by the metropolitan water agencies. We have provided similar comments to our previous submissions, however, they are repeated here in the context of the current inquiry terms of reference. We therefore outline some of the issues that we would like to cover that are relevant to this inquiry.

1. The Specific Interest of the Hawkesbury-Nepean Catchment Management Authority

As you are aware, the Hawkesbury-Nepean River provides an essential role for the provision of water and wastewater services in the Sydney Basin. It is because of the catchment's implication in both these aspects of water services that the Authority welcomes the opportunity to make this submission to the inquiry.

Nearly all the water consumed in the Sydney basin is taken from the Hawkesbury-Nepean River. In addition, the northern, southern and western suburbs of Sydney rely on the Hawkesbury-Nepean River for the disposal of STP wastewater. The Authority considers that the essential services provided to the community and industries of the Sydney Basin by the River can be better understood and addressed by the adoption of a more holistic and integrated approach to planning, managing and costing the provision of future water services.

The Authority has a statutory responsibility (under the Catchment Management Authorities Act 2003) for setting and reporting on the natural resource management standards and

targets for the Hawkesbury-Nepean catchment. These targets must reflect the state-wide standards and targets set by the Natural Resource Commission. These targets are set out in the Authority's Catchment Action Plan and should guide all natural resource planning and management for the catchment.

The Authority has been further directed by the former Minister for Infrastructure, Planning and Natural Resources, the Honourable Craig Knowles MP, to develop a strategy for restoring the environmental health of the Hawkesbury-Nepean River as a component of the Authorities statutory Catchment Action Plan, and consequently, this strategy has become a key operational focus for the Authority. The strategy has identified that the future management of water and wastewater services in the Sydney basin are key driver for the success, or otherwise, for achieving our river health targets.

2. Integrated Water Cycle Management

The implementation of a more integrated approach to water cycle management approach is essential to capture and address key issues challenging the sustainable management of the Hawkesbury-Nepean River.

The adoption of the principles of integrated water cycle management (IWCM) are needed to guide the different agencies to interpret IWCM on a natural system basis, rather than through the existing institutional approach. The Authority considers that the objective of achieving sustainable water use can only be achieved if future planning is focused on the context of managing the natural system, its capacity, its needs and its dynamics.

The Authority supports the final recommendations for the Hawkesbury-Nepean River Management Forum (Forum) and sees the adoption of theses recommendations by government will do much to achieve this objective.

To date, the water storages and the water supply for Sydney have been regarded as the city's water supply asset, rather than the river and natural systems that provide that actually supply. This mindset has helped to thwart the development of a more integrated approach to water cycle management by:

- Not linking water extraction and waste water disposal as parts of the same management cycle.
- Not requiring an integrated approach for the planning and regulatory framework applying to all policy and practice influencing water.
- Creating a distortion in the water market through water pricing that does not acknowledge the impact and cost of the river's water deficit or the increasing social and economic cost s of the discharge of waste water on river and river reliant communities and industry.

As detailed in our previous submissions, the Authority considers that future planning needs to undergo a major paradigm shift sot that future planning, management and regulation considers the total water cycle rather than just system components as currently done by local water services providers. Such an approach would encourage better appreciation of the wide range of services provided by that water. In the Hawkesbury-Nepean catchment these services include provision of:

- environmental flows, that needed to maintain fish populations and fish breeding to support the commercial and recreational fishing industry,
- town water supplies for Sydney, Illawarra and Blue Mountains, Gosford/Wyong, Moss Vale/ Mittagong, Richmond/Windsor, Lithgow and Goulburn,
- irrigation water supplies required to support agricultural and horticultural production, with over $600million of irrigated product each year,

- a clean and ecologically healthy river system that supports recreation and tourism expenditure of over $1 billion a year,
- electricity generation that supplies 23% of the state's power supply, and
- social and environmental amenity for the growing urban areas of Western Sydney.

With natural river flows already being over allocated, new water sources need to be found to service the South Western and North Western growth areas in the Sydney basin. Stormwater harvesting and effluent recycling appears to be the most logical new supply options. The introduction of the Growth Centres Commission to oversight the provision of water services to these areas provides an opportunity to manage water services as a more holistic manner.

The Authority submits that any social, economic and environmental impacts that are projected outside this loop need to be managed by the overarching IWCM policy framework applying to the larger area.

For example, **Section 1.3.2 Sewer Mining** of the Issues Paper, acknowledges that sewer mining can reduce the demand for potable water supplies in manner which incorporates environmental protection. The paper also acknowledges that new supply option can result in avoided costs for the metropolitan water agencies for finding new potable supplies, which is supported by a zero cost sewer mining charge. This thinking is incorporated into the principles of IWCM and s necessary to progress water management in the Hawkesbury-Nepean.

This can only occur in the planning stages of development of sewer mining. There will need to be a pricing mechanism to determine allocation procedures once it becomes a desirable alternative to highly process of town water

Access to treated effluent by third parties (as exemplified by the Services Sydney proposal) introduces another scenario, and highlights the need for the overarching IWCM policy framework. For example in the opinion of the Authority, the current proposal by Services Sydney to use treated effluent to provide environmental flows to the rivers, appears to be response to use the rivers for disposing of the treated effluent the company is unable to sell, rather than a real attempt to introduce a meaningful environmental flow regime as recommended by the Forum. The location, timing, quality and quantity of any planned discharge to the river need to be linked to the natural water flow mechanism operating in the river.

This demonstrates a need for clear policy guidelines, in the case of environmental flows, to outline what they are and what they need to achieve.

The Authority submits that IWCM principles need to be clearly set out in a statutory Water Management Plan for the greater Sydney region and that this Plan needs to provide the overarching policy for all participants in the water cycle.

3. Roles and Responsibilities of Participants in The Industry, Both Government And Private Sector – (Issues Paper Section 2 Industry And Regulatory Context).

The Authority is not unduly concerned about the unbundling of the water service delivery so long as there is a strong 'bundling' of the water planning, regulatory and management policy processes that inform it.

As previously mentioned, the water policy framework needs to be set out in a Water Management Plan, which needs to clearly define the context, the objectives and the mechanisms for overall monitoring, reporting and review. This overarching policy needs to be set in the broader resource management context for the water industry as only then can the different roles and responsibilities be adequately identified and integrated.

The current arrangements are unable to deal with the very limited number of participants who are involved in the delivery of water and wastewater services in the Sydney Basin and the Authority considers this issue needs to be addressed before any additional participants are

entertained. The inadequacy of the current arrangements is exemplified by the following case:

- The allocation of water to irrigators on the Hawkesbury River below Penrith, on the Nepean River below Matahill Creek, and on South Creek are drawn mainly from treated sewage effluent flows in the river. These effluent flows are having a deleterious effect on river health. They are constant volume flows and they contain too many nutrients, in a river that requires variable flows to trigger life cycle responses in native ecosystem. These flows are having an adverse effect on the river environment and on the river reliant commercial operations (eg tourism, recreation, irrigation and fishing industries) that rely on a healthy river.
- The simplest method of dealing with the constant flows and nutrients associated with STP discharges is to remove the discharges. However, these effluent flows have already been allocated to irrigators even though action by another regulator, Department of Environment and Conservation (DEC), may reduce the volume of these flows at any time by diverting the effluent to other reuse schemes. Such action would benefit river health, but affect adversely some irrigators unless the reuse was allocated to them through DEC.
- Costing and pricing of the effects of extraction and discharge does not currently deal with allocative mechanism or WCM principles

Department of Natural Resources (DNR) water sharing plans, DEC pollution licensing, IPART pricing policies, and DNR extraction licenses and water supply authority operations tributary management and land management planning, all impact on these river conditions. There is currently no regulatory framework which takes these interrelationships into consideration across the different service providers, prior to the development of the regulatory instruments, or following integrated monitoring of the impact of these different regulatory regimes.

Currently there is no linkage between regulatory authorities that control access (extraction) and discharge (STP), or is there a link between wastewater agencies, and/or third party recycling bodies and levels of discharge required **(Issues Paper Section 2.2 Regulation of Recycled Water)**. DEC's future role needs to be implicit in managing and protecting environmental flows as current STP discharges now inadvertently provides a portion of these flows as well as a water resource for extractors. Additionally, STP discharges while playing a part in maintaining what are now claimed to be environmental flows (even though not regulated to mimic the environments fluctuations) places a cost onto the environment by discharging of water of reduced quality and that degrades the natural flow variability on which local ecosystems depend.

The current institutional arrangements need to be overhauled prior to the implementation of further large scale recycling and sewer mining, as the entry of any new operators into the market have the potential to impact on quantity (current discharges to the river and future extraction in the absence of STP discharges) and quality of river water.

4. The Principles for Pricing, Including Pricing for Recycled Water That Should Be Associated With Existing and Alternative Industry Structures

The Authority considers that the current system for determining water-pricing focuses too narrowly on the supplier and does not place the supply of water in context. This supply driven approach minimises the consideration of overall costs of supply which in turn result in lower cost pricing. The current approach does not focus on the overall demand for water from a catchment perspective (as a scarce and limited resource) nor does it reflect the cost of these extractions impose upon the environment and regional river dependent communities and industry. The Authority submits that an important principle for future water price setting needs to reflect the true cost of supplying water, that ultimately reflects the total demand for water and the wider costs associated with supplying that water.

In determining the appropriate pricing for water, recycled water and related sewer mining products the needs of all the beneficiaries and users need to be considered, if the pricing regime is to promote ecologically sustainable development. For example, such an approach needs to support the cost of remediating the environmental damage caused by the water extraction. The lack of an environmental flow regime is one of the key factors contributing to the poor quality of the health of the Hawkesbury-Nepean River and is a direct contributor to the recent outbreak of aquatic weeds that has had a direct impact on other river users and other related services. Financial support to manage issues (symptoms) such as aquatic weeds will be an on-going need while ever there is insufficient flow to provide periodic flushing of the river and until an appropriate environmental flow regime is implemented. The cost of clearing the river of these weeds and other remediation needs to be reflected in the price of accessing all forms of water.

The Authority also supports the view that water pricing should better reflect the value and scarcity of the resource and thereby help to manage demand.

Comments on Issues **Paper Section 4, Factors To Be Considered When Pricing Recycled Water Services:**

- If the price of recycled water is set too low then demand can increase, therefore placing higher demand on the existing finite potable water supplies unless a tiered pricing system is employed.
- It must be remembered that recycled water can be a substitute for potable water supplies drawn from dams and other sources (such as rivers).
- When considering marginal costs **(Section 4.1.1)** of water supply, the San Diego example uses a common price for pricing all recycled water products, which is around 50 per cent that of the potable water price. This lower price for recycled water reflects the fact that sewer revenue offsets some of the costs of producing recycled water. Treated effluent is provided at a nominal cost by the agency. This recycled water pricing also takes into account the value of financial incentives the water supply agency receives for implementing recycled water projects. The market for water within the catchment is confined. The effects of a system that has no water management plan or even a water sharing plan means that there are no principles on which to base an allocative mechanism and set pricing principles. The licensing, of say, the extractions of water for power generation or indeed the release of pollution in the discharge effluent has an effect on the ecology on the water available for Sydney's water supply.
- There is currently no cap on the level of extraction of water for water supply for either Sydney, Illawarra or Gosford-Wyong water supply. Without some form of regulatory mechanism to determine the allocation of environmental water, supplies for other water users or the rules for inter basin transfers the current pricing regime provides a subsidy to town water supply users to the dis-benefit of other industries and communities dependant on the river.
- The use of San Diego model for pricing is fraught with danger. The rainfall in this area is minimal which results in a consistent demand for recycled water. These are not the circumstances that exist in the Sydney region and the Hawkesbury-Nepean Catchment where rainfall is highly variable so a water management plan is required to manage excess flows of sewage and drainage water during high rainfall events when demand is down. The problem comes back to the need to integrate discharge management with flows and quantity management.
- The approach using analyses of marginal and avoided costs need to be broadened to seek opportunities and identify the benefits for further investment.

- The efficiency of the current potable water price is questionable. If an increase of potable water supply needs to come from other (new) sources, this approach may introduce greater inputs than the long run marginal cost (LRMC) currently considers.
- At very least the, the short term price for water needs to include the cost of remediating the environmental impact of extracting water from the natural system.
- Long term measures such as the provision of flows that sufficiently mimic natural flow regimes must be a fundamental requirement for the operation of the water storages to sustain the health of the river systems.
- Spreading costs and returning funds to environmental remediation may be necessary where extraction/recycling may reduce "environmental flows" (flows from STP's) because of substitution into new or other areas.
- As the current approach places a substantial cost on the environment from the resultant water extraction it is recommended that future pricing consideration needs consider the cost of all externalities resulting from the operation of the water utilities.
- This consideration of external costs and benefits needs to consider costs to the agencies. The costs of providing recycled water are shared with costs of providing other water services. There are many benefits from an administrative perspective that are related to delivering recycled water. The value of these external items is more important than that what has been previously valued.
- As the source for the original water benefits the population at large, and, the benefit of a reliable potable water supply benefits the same population, then it is logical that the recovery of the cost of recycling needs to be met by these same customers. It also logical that the costs for environmental remediation be a component of the water price that passed on to these consumers.

In determining the appropriate price for recycled wastewater, the adoption of a total water cycle approach would suggest that recycled water needs to be delivered at a lower price from first use water. The application of a differential pricing regime between first-use and recycled water needs to reflect the environmental costs that have been averted by not discharging constant flows of nutrient rich water to the river and would encourage its use in preference to first-use water thus signalling the more sustainable source.

Comments on **Section 3.2.2, Sewer Mining**

- Currently, prior to treatment, sewer water is treated as a waste product where there is a cost to improve the water quality. The resource after treatment is valuable as a substitute for potable water and river water used for irrigation or other purposes. While STP discharges are a valuable quantity of water, the water quality discharged effects its value to the environmental.
- Sewer mining costs need to be considered as avoided costs during price establishment, as there may continue to be costs for polishing water to meet regulatory standards, unless it is produced for sale to a third party that is then required to further polish water quality. This then ensures avoided costs to agencies for water quality improvements.

As the Issues Paper states in Section 3.2.3, Sydney Olympic Park Authority, pricing is a balance between recovering costs and preventing potable water usage where water of a lower quality can be used. Sewer mining needs to be economically sustainable. Fragmentation of suppliers may not be beneficial as it may diminish returns for the providers. If new market entrants are required to treat and recycle all sewage from an area, the issue of equity of receiving payments for that purpose needs to be considered. Some other issues that need to be taken into account include:

- Ensure developments that are impacting on water usage, and being supplied through current supply receives adequate capital contribution to fund the ongoing growth of the scheme to sustain growth generated by developments.
- Some good examples from Victoria and Queensland **(Issues Paper Section 3.3, Pricing recycled water in other jurisdictions)** of different approaches.

Comments on **Issues Paper Section 5.0, What Are The Main Options For Setting Recycled Water Prices:**

- The Authority believes that recycling offers multiple benefits which make the offsite (for example river health) considerations and a community service obligation component a necessary component in future price setting.
- A combination of pricing options could be applied if a single approach does not achieve efficient pricing outcomes for all uses of recycled water.
- The Authority agrees that water recycling is not about producing excess profits. It is about making water available that is a substitute for the use of potable water. In this context it would be appropriate that suitable audit regimes are implemented **(Section 5.4, Auditing of recycled water prices)**. Product pricing needs to be simple to understand and "create a clear price signal". The price of water from sewer mining should be generally more than the cost of recycling water per site per landowner to encourage water management at source. IPART should consider mechanisms that encourage on site effluent management and not concentrate merely on Sydney Water's assets.
- While sewer mining provides substantial avoided costs a "negotiate/arbitrate" pricing model may be worthwhile for sewer mining. It is also considered that if capital, operating and administrative costs can be apportioned for the supply of water from the environment (without previously apportioning an environmental cost) then avoided costs that are beneficial to the operator or agency should be able to be assessed. Avoided costs should be among the main factors in an assessment to provide recycled water.

The costs of treating water to a standard that will not harm the environment through excessive pollutants or constant flow discharges needs to be included in the cost of sewerage services. There must be a balance between deciding if the transmission of that treated water to an acceptable reuse, as against another form of disposal, should be included in the costs of the recycled water or allocated with the cost of the sewerage services.

The Authority considers that recycled water efficiencies **(Section 6.1 Economic efficiency)** needs to reflect the dynamic efficiency whilst considering efficiency overall. The authority agrees that efficient recycled water prices will make consumers aware of the economic costs of the consumption so they make purchasing decisions accordingly.

Third-party access will provide access to recycled water which should ultimately reduce demand for potable water, which in turn leads to avoided costs in providing new water sources at the potable quality level. It needs to be the aim of the government water monopolies to maintain their focus on avoided costs as part of their planning strategies.

Additional objectives that the Authority recommends need to be considered during the assessment of recycled water pricing options are:

- Avoiding future costs for the construction of new potable water supplies or water sources,
- Achieving environmental objectives and avoiding additional costs of environmental remediation through setting environmental flows with adequate water quantity and quality,

- Substitution of recycled water for potable and other demands on the river for water e.g. agriculture/industry,
- Reduced demand on river water access,
- Improved water quality in rivers and creeks by removing existing STP discharges,
- Security of supply to industry.

Trade-off between objectives:

- Hidden or avoided environmental costs, through quality of river health and efforts required in sourcing funds and providing/projecting investment required to balance extraction/discharge imbalances to the environment.

5. Issue Paper - Other

Competition for water sources between all extractors and the environment needs to be a factor when considering opportunities to provide recycled water. This approach needs to consider the specific water quality needs that can be satisfied by water products other than potable standards when planning future reuse options.

Comments on **Appendix 3**

- While customers in residential recycling areas appreciate the benefits of recycled water supplies, pricing needs to consider the triggers that encourage water usage and may impact on potable water suppliers and water sources. Therefore, future pricing needs to consider a balance to encourage use of recycled water, whilst still regarding it as a precious supply so that impact on potable water is not experienced.

6. Any Impact on the Environment.

The Authority considers that the maintenance of environment health should provide the context for the sustainable use and management of water. It is concerned that the reliance of Sydney, Illawarra and Gosford-Wyong on the Hawkesbury-Nepean environment for its wellbeing has been largely overlooked in the rapid expansion of the greater metropolitan area.

A number of all too obvious environmental impacts, such as the outbreak of aquatic weed and algal blooms, can be directly contributed to the volume of water extracted and the substantial changes to river flow regimes that are directly linked to the provision of water services. Other impacts, such as the degraded water quality, slow build up of sediments, destruction of the oyster industry and loss of biodiversity, are more insidious outcomes. Achieving improved river health in the Hawkesbury-Nepean is dependent on the development of integrated awareness of common management and policy objectives of the competing state agencies and recognition that the key environmental processes such as the inter-relationship of water cycle management and nutrient cycle management.

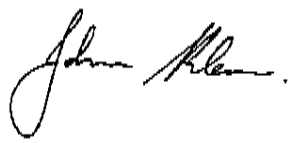
Comments on Appendix 3

- There should be no price for environmental flows. These are the river flows that a dam operator must leave in the river because of the licence conditions of their water extraction and storage operations. However, there can be a value for the quantity of recycled water that they buy that can be delivered to the out let works of the dam in a variable condition suitable for replacement environmental flows. The value needs to be calculated at the bulk water price.

The Authority is responsible for instigating and guiding investment in natural resource management throughout the catchment and for river health. Our statutory role determines that this investment needs to strategic, effective and not eroded by unsupportive and poorly integrated actions of other parties. To this end, the Authority will be guiding investment to where it has confidence that it will be sufficiently protected to deliver real benefits.

The Authority welcomes the opportunity for our Directors Bob Wilson and Jenny Smith to meet with you to discuss these matters further.

Yours sincerely



John Klem
Chairman
30 March 2006

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