

5 May 2006

Our Ref: DEP 29

Chairman  
Environmental Protection Agency  
Attention Mr Colin Murray  
PO Box K822  
PERTH WA 6842

Dear Chairman,

**SOUTH WEST YARRAGADEE WATER SUPPLY DEVELOPMENT – ENVIRONMENTAL REVIEW AND MANAGEMENT PROGRAM (ERMP)**

Please accept this document as a submission from the Shire of Nannup regarding the South West Yarragadee Water Supply Development proposal.

The South West Yarragadee Water Supply Development proposal is located in the most part within or adjoining the Shire of Nannup. The Shire of Nannup is particularly concerned to ensure that this proposal is in the best interests of the environment and the community. Council is of the view that the plan to utilise the Yarragadee aquifer is not an environmentally responsible proposal.

The proposal is the most significant environmental issue ever faced by the Shire of Nannup and the greater South West region. Council seeks that due consideration be given to the points raised in this submission as the provision and management of a limited and precious resource such as water requires a careful and measured approach and strategy.

The Shire of Nannup believes that this proposal will cause significant adverse environmental issues for the South West region and would like to bring those concerns to the EPA Board's attention. This submission outlines our concerns under the following categories:

1. Unacceptable Environmental Impacts
2. Reasonable Regional Needs
3. St John's Brook Impact

4. Jarrahwood Bore Field Site Selection
5. Acid Sulphate Soils
6. Independent Technical Assessment
7. Unknown Considerations
8. Agricultural Impacts
9. Water Corporation Marketing Strategy
10. Summary

### **1. UNACCEPTABLE ENVIRONMENTAL IMPACTS:**

The ERMP document outlined a number of unacceptable environmental impacts that would arise if this proposal was approved. Council is very concerned about these adverse environmental impacts and reiterates the impacts for the EPA Board's further consideration:

- Water levels in existing wells on the Swan and Scott coastal plains will drop by up to 3m. (Volume 1, Chapter 5, pages 5-10 and 5-11, Volume 2, Chapter 7, pages 7-105, 7-106 and 7-107).
- Sea water interface at Bunbury, where the aquifer flows into the sea, will move up to 400m inland, affecting bores within 1km of the coast. (Volume 2, Chapter 5, page 5-95). Have there been any studies undertaken on this matter in respect of environmental and economic affect?
- Summer flow of the Blackwood River will drop 13 per cent in dry years, causing a 14 per cent increase in salinity in the river during January and February. (Volume 1, Chapter 5, page 5-7).
- Water table will drop up to 5m in the Milyeannup Brook and Poison Gully valleys. (Volume 1, Chapter 5, page 5-8).
- Water table will drop up to 2m in the St Johns Brook valley. (Volume 2, Chapter 7, page 7-74).
- Water table will drop up to 50cm in the Rosa Brook valley after 30 years of pumping. These drops will cause vegetation changes over nearly 1000ha. (Volume 2, Chapter 7, page 7-57). (Volume 1, Chapter 9, page 5-9).
- Summer flow in Poison Gully and Milyeannup Brook will drop 30 per cent and areas of the creek will stop flowing, forcing fish, including rare species, into the lower reaches. The Water Corporation will supplement flow by building a well nearby in the upper part of the Yarragadee formation. (Volume 1, Chapter 5, page 5-8).

- Water table on Scott and Swan coastal plains will fall up to 2m after 30 years of pumping. (Volume 1, Chapter 5, pages 5-10 and 5-11).
- The water table around lakes Jasper and Quitjup will decrease 10-25cm after 30 years of pumping. (Volume 1, Chapter 5, page 5-10).

Council also questions whether any studies have been undertaken into the likelihood of the water temperature of the Blackwood River rising through reduced (shallower) flows which could result in algal blooms and fish deaths through water stagnation.

The environmental impacts portrayed in the ERMP document are considered unacceptable with Council being of the view that the State Government has a role and an obligation to ensure that the environmental impacts of State initiatives such as this are reduced and minimised, rather than increased. Council also finds it difficult to understand how this proposal can be considered in the light of the significant environmental impacts that are noted in the ERMP, amongst other documented studies.

## **2. REASONABLE REGIONAL NEEDS:**

The ERMP document states in Volume 2, Chapter 3, page 3-12 as follows:

*“The proposal will be developed such that reasonable regional needs for water, including social, recreational and projected future development needs are not compromised by the proposal.”*

It is Council’s view that reasonable regional needs for water, including social, recreational and projected future development needs are compromised by the proposal. Even without the inclusion of the Water Corporation’s 45 GI application the estimated future drawdown on the aquifer for regional use exceeds the recharge figure thus creating unsustainable use.

Recharge to the Yarragadee aquifer was estimated from modeling to average 151 gegalitres per year during the period 1990 to 2003. (ERMP Volume 2, Chapter 5, page 5-9). The Minister assisting the Minister for Water Resources the Hon. John Kobelke MLA advised on 30 November 2005 of a recharge figure for the aquifer of 155 gegalitres.

Of concern is that the Minister predicted regional demand of between 173 and 188 gegalitres per year for the South West region by 2033, a figure not disputed. The State Government has made a commitment that reasonable regional needs will be met as a priority before consideration of the Water Corporation proposal. Based on this information the Water Corporation proposal can not proceed unless the Government breaks the reasonable regional needs commitment or if it

is prepared to abstract a greater volume of water from the aquifer than the recharge figure.

Security of access to water by local users and providers is not guaranteed by this proposal and Council submits that the Water Corporation has not taken responsibility for this. Tourism issues have not been considered in the proposal both in terms of environmental affect and future development. Land use changes if water is not available for irrigated agriculture are also likely if regional needs are compromised. Council submits that an increase in blue gum plantations would be a direct result of water licenses not being issued for irrigated agriculture. This would further drop water tables as blue gums are significant water users and unlike irrigated agriculture, do not return water to the ground.

### **3. ST JOHN'S BROOK IMPACT:**

The ERMP indicates that there are two bores to be located in the St John's Brook area, east of Vasse Highway. It is understood that this site has had neither environmental analysis nor landholder consultation (ERMP volume 1, chapter 1, pages 1-19). The Shire is aware that adjoining landowners have concerns about the unknown environmental and economic impacts.

On the west side of Vasse Highway, St John's Brook develops into a Department of Conservation and Land Management (CALM) conservation area. The St John's Brook conservation area houses significant wetlands and a management plan was recently developed for the area. The Shire of Nannup would like to know if the Department of CALM has been consulted on this proposal. Council is interested in CALM's assessment of this proposal as it is believed it will significantly impact the environment of the St John's Brook conservation area.

The Shire of Nannup considers that the management plan for the St John's Brook conservation area would not advocate actions that would negatively impact the conservation values of the area such as lowering water tables, decreasing stream flows and affecting vegetation. Unacceptable human intervention changes are proposed in the ERMP document, in particular Volume 2, Chapter 7, page 7-78 with an example as follows:

*"The Darradup vegetation complex within St John's Brook is most susceptible to water table drawdown...there will be some change in composition within these vegetation complexes at St John's Brook".*

The ERMP also does not seem to consider the impact on the estimated 16% of agriculture land in the St John's Brook area. The same impacts could be felt leading to land becoming less able to support current stock numbers, bores having to be lowered and the resulting compensation issues. Council believes that landowners in this area have a right to be directly consulted on what may occur to their properties including discussion on compensation.

The ERMP concludes this section by asserting that “a net improvement in biodiversity will be obtained, notwithstanding the anticipated changes in the composition of vegetation”. The impacts on this area as stated in the ERMP (Volume 2, Chapter 7, page 7-74, Section 4.3) such as the reduction in permanent stream length and base flow rate along with a reduction in the water table of 1 to 2 metres after 30 years (upstream from Barrabup Pool) are unacceptable.

The proposed mitigation measures of these negative impacts is to supplement water flows. This advocates extracting water, affecting the natural water balance, and then correcting the imbalance by replacing the water. Council notes that there would not be a water imbalance in the first place if the water flows and water table were not artificially affected. The statement that a net improvement in biodiversity will occur is contested and the anticipated change in vegetation across an area of 700 hectares as a result of this proposal is unacceptable.

The ERMP (Volume 2, Chapter 7, pages 7-65) outlines the sustainability objectives for the St John’s Brook area. These objectives, which include the maintenance of the integrity, ecological functions and environmental values of wetlands are clearly compromised by the proposal to drop water tables, decrease stream flows and impact vegetation.

#### **4. JARRAHWOOD BORE FIELD SITE SELECTION:**

According to the ERMP, the Jarrahwood bore field is not scheduled for completion until 2009. The Shire of Nannup does not understand how a license can be issued for an incomplete proposal, especially when all the impacts have not been fully investigated. Council is also concerned that economic development would stop (no more water licenses would be issued in the South West) until the bore field is completed and the Water Corporation have gained the appropriate license.

It is understood that a full environmental analysis has not been undertaken for the Jarrahwood site, as this was not the first choice site. Council understands that the original bore field was located in a different area with very different environmental considerations than those at Jarrahwood. Council is led to believe that the environmental data from the original research base has been extrapolated from the original site to the Jarrahwood site. If this is the case, the environmental analysis has no relevance to the Jarrahwood site and brings into question the credibility of the environmental assessment process.

The ERMP states that the Jarrahwood site is located 30 kilometres from significant wetlands. This is incorrect information. The Jarrahwood site is located some 12 kilometres from significant wetlands. The possible detrimental impact on these wetlands is a significant issue requiring further consideration and

investigation. These wetlands are located on the coastal areas near Wonnerup. Further, it is difficult to determine whether the relocation of the bore field site to Jarrahwood has included as a separate impact the wetlands at St John's Brook which are in close proximity to the Jarrahwood site – as distinct from the impact on the St John's Brook ecosystem by the proposal overall.

There appears to have been no work undertaken in respect of the changed bore field location and the recharge figures stated for the northern and southern aquifers. It is understood that the aquifer as a whole discharges in two locations, east of Augusta (south) and near Bunbury (north). There are differing discharge and water balance rates. With the moving of the bore field it is reasonable to conclude that the northern discharge area will incur a greater impact than the southern discharge area. This detail is fundamental in determining environmental impacts. The impact on the discharge areas issue appears not to have been investigated and as a result an informed decision cannot be made.

## **5. ACID SULPHATE SOILS:**

The ERMP report advises (Volume 1, Chapter 1, page 1-34) that the affects of acid sulphate soils are expected to be minimal. The same paragraph contains the statement that the predicted decline in water table levels on the coastal plains is small. The ERMP report also advises (Volume 2, Chapter 5, page 5-102) that the release of acid and metals as a result of the disturbance of acid sulphate soils can potentially cause significant harm to the environment and to infrastructure.

Impacts include the degradation of wetlands, localised reduction in habitat and biodiversity, deterioration of surface and groundwater quality, loss of groundwater for irrigation, increased health risks associated with arsenic and heavy metal contamination in surface and groundwater, acid dust, and risk of long term infrastructure damage through corrosion of sub surface pipes and foundations by acid water. Acid sulphate soils become hazardous when exposed to oxygen.

The ERMP report also states (Volume 2, Chapter 5, page 5-103) that an acid sulphate investigation conducted on the Scott Coastal Plain by the Department of Environment in 2003 identified the existence of potential acid sulphate soils a few metres below the watertable. These soils would not become exposed to oxygen unless the watertable drops by those few metres which is what is acknowledged in the ERMP document will occur.

Council believes there will be detrimental environmental and economic impacts to areas of the Scott Coastal Plain with an increase in acid sulphate soils.

## **6. INDEPENDENT TECHNICAL ASSESSMENT:**

The only independent technical assessment of the Water Corporation proposal was undertaken by a Peer Review Panel which concluded in 2005:

*“The Peer Review Panel has examined the Conceptual Model and the Numerical Model of the South West Aquifer Modelling System (SWAMS). The Panel concludes that there are several areas of data uncertainty within the conceptual model relating to:*

- model geometry and hence boundary conditions along the western and southern margins of the system,*
- lack of laboratory estimation of permeability from geological samples,*
- the deficiency of evidence to confirm that aquifer properties obtained from test pumping at one location in the system can be confidently applied to other sections of the aquifer system,*
- unreliability of some water level data obtained from historical monitoring bores.”*

The ERMP document refers to the independent technical assessment (Volume 1, Chapter 2, page 2-7) and again in Volume 2, Chapter 5, page 5-110. The last two paragraphs on page 5-110 are cause for concern as the guarded comments reflect the lack of confidence in the model shown by the review committee as noted above. It is concluded that the only independent technical assessment of the proposal remain far from convinced at the accuracy and capability of the model used to assess data and base decisions on.

## **7. UNKNOWN CONSIDERATIONS:**

### Sensitivity of the superficial (Leederville) aquifer

The assertion that the various aquifers in the area are independent of each other is questioned. The principles of physics and gravity dictate that there must be some interdependence between aquifers, even if it is not evident in a short (say 1000 year) timeframe.

### Base figure for estimating environmental impacts

Environmental impacts appear to have been calculated based on the extraction of 45 gigalitres only. Aquifer use is presently estimated at 72 gigalitres (2003) from a licensed allocation of 116 gigalitres. Use has increased from 36 gigalitres in 1990. Existing licenses and impacts need to be considered if they have not.

### Monitoring and Mitigation

There is scarce information provided on exactly what environmental monitoring will be undertaken, where it will be undertaken, how it will be undertaken, who will be informed of the results of any such monitoring, and what the trigger will be for the introduction of mitigation measures.

### Adaptive management

By its very nature the adaptive management approach advocated by the ERMP report (Volume 1 Chapter 8, page 8-6) creates unknowns in the context of potential irreversible damage to the environment. Adaptive management *“does not postpone actions until enough is known about a managed ecosystem, but rather is designed to support action in the face of limited scientific knowledge”*.

### Current unregulated water use

Council has become aware of an estimated 50 gigalitres of water per annum that remains unaccounted for and unregulated by industrial/commercial use in the northern metropolitan area. This has been raised at various public forums over recent times and formal confirmation by the Water Corporation is sought. Council is of the view that the Southern Yarragadee aquifer nor any other *“new”* water resource should not be accessed without utilising this supply first.

### Absolute cost of water abstraction

Costs such as lost economic opportunity and environmental impact costs appear to have not been factored into the ERMP study. No indicative cost or economic evaluation has been done to look at the cost to the South West of taking the water to Perth. At what dollar figure has the cost of environmental mitigation been put at?

## **8. AGRICULTURAL IMPACTS**

Council is concerned at the possible compensation issues when perennial pasture is affected by the lowering of the water table or natural soaks used for summer feed dry up resulting in the inability to sustain grazing stock. The cost of lowering existing wells and bores with resulting water quality issues also appears to be an area that the Water Corporation has not investigated.

Has the economic cost been evaluated as to the loss of agricultural production, changes in land use, less tourists in the inland areas of the south west and the cost to industry to lower pumps and bores into other water sources?

Council is concerned that the impacts on Agriculture by taking the 45gl to Perth have not been fully understood by the Corporation and barely rate a mention in the ERMP. The estimated value of agricultural production in the Shire of Nannup is \$44 million per annum. It is this community's single biggest employer and a major economic driver. Considerable growth and expansion continues to take place and without water security and compensation for the industry as a result of the predicted drawdown on the water table, there could be a resultant decline in

the industry. The economy may experience a significant change in land use to Eucalyptus Globulus (blue gum plantations) as farms become less viable.

## **9. WATER CORPORATION MARKETING STRATEGY:**

The Shire of Nannup is concerned that the Water Corporation appears to be “marketing” this proposal on the basis that the South West of WA will receive benefits from the project. Council understands that the proponent, the Water Corporation, on behalf of the Environmental Protection Authority, placed the advertisement calling for public submissions on the ERMP. This gives cause for concern at the independence of the process.

The advertisement calling for public submissions to the ERMP stated: -

*“The Water Corporation proposes to extend the Integrated Water Supply Scheme (IWSS) into the South West.....to meet growing demand.....including potential public water supply demand in the South West”.*

The use of water from the IWSS by South West users is depicted as a benefit to the South West. The majority of the South West has adequate water supplies negating any need to extend the IWSS to the South West. The extension of the IWSS to the South West is designed primarily to extract water from this area.

Council is concerned that State Government funded marketing and advertising for this proposal will put the Water Corporation in a very strong position to influence public opinion on this proposal. Therefore, it is submitted that any claim by the Water Corporation that it has positive support for the project would be an inaccurate reflection of community feedback.

## **10. SUMMARY:**

The Waters and Rivers Commission will grant a license to the Water Corporation to pump the water to Perth having been satisfied that there are no significant environmental or social impacts. (Water Corporation Community Update # 4 December 2003). The only possible conclusion to draw from the ERMP report is that the water should not be abstracted as there are significant environmental impacts as pointed out in this submission.

Council is of the view that there is insufficient separation between the Water Corporation as the proponent with a vested interest, and the fairness of the justification process. Further Council urges consideration be given to alternative large scale water saving initiatives such as water recycling and reuse as well as reviewing the use of the adaptive management principle as it applies to environment issues.

Council urges the EPA Board takes our submission into consideration when assessing this proposal.

**SHANE COLLIE**  
**CHIEF EXECUTIVE OFFICER**