

Northern Victoria Irrigation Renewal Project – Expert Review Panel

March 29, 2011

Greg Wilson
Secretary
Department of Sustainability and Environment
8 Nicholson Street
East Melbourne
VIC 3002

Dear Secretary

ADVICE ON NVIRP Landscape Scale Regional Assessments

The Minister for Environment and Climate Change endorsed the Northern Victoria Irrigation Renewal Project (NVIRP) Expert Review Panel (ERP) and charged it with the responsibility to provide advice to NVIRP, the Minister for Water, and the Secretary of the Department of Sustainability and Environment in relation to the relevant conditions in the decision of the Minister for Planning that an Environmental Effects Statement (EES) is not required for the NVIRP. The ERP is Denis Flett (Chair), Jane Roberts and Terry Hillman and all are independent consultants experienced in the ecological relationships to hydrology, and the consequences of hydrological changes.

Condition 3 of the Minister for Planning's decision that an EES is not required for the NVIRP stipulates that before operation of works, NVIRP must prepare a framework for protection of ecosystems potentially at risk from the implementation of NVIRP with particular attention to aquatic and riparian ecological values (the Water Change Management Framework (WCMF)).

The WCMF outlines procedures for monitoring, reporting and auditing changes in hydrological conditions in wetlands or waterways associated with the project's operation. It provides the environmental commitments, processes and methods for the relevant operations of the modified system. In addition it lists (Table 11) a number of reports to be prepared that collectively identify potential impacts associated with NVIRP and recommend suitable mitigating actions. The NVIRP Landscape Scale Regional Assessments Report addresses the requirements of the WCMF, in particular the requirements for NVIRP to complete a Regional Environmental Assessment and a regional Groundwater Assessment.

NVIRP, after consultation with the ERP, recognised a degree of overlap between the Regional Environmental Assessment and the Groundwater Assessment, and resolved that it would be more effective for these two assessments to be presented as one consolidated report, the NVIRP Landscape Scale Regional Assessments Report. The ERP is supportive of this approach as it facilitates integration. Here we use the phrase "**combined assessment**" to refer to the assessment undertaken to address both the Regional Environmental Assessment and the Groundwater Assessment, and its reporting.

The Regional Environmental Assessment, as given in the WCMF, is required to address the following:

- The cumulative effects of the impact of NVIRP on the environmental values of waterways and wetlands; and
- Any additional management and mitigation measures required to be implemented through Environmental Watering Plans.

The Groundwater Assessment, as given in the WCMF, is required to address the following:

- The cumulative impacts of NVIRP works (capital works and connections) and their implementation on the hydrology and hydrogeology of the GMID; and
- The cumulative impacts of NVIRP actions on the hydrology and hydrogeology of the waterways and wetlands requiring Environmental Watering Plans (i.e. 'at risk').

ERP Advice on the combined assessment, viz NVIRP Landscape Scale Regional Assessments Report was originally to be delivered by the end of December 2010. The ERP notes that you have granted an extension of the submission date for this Report to the end of March 2011. The ERP has based its advice on the updated NVIRP Landscape Scale Regional Assessments Report (Final 25 March 2011).

The ERP has structured its advice around three criteria:

- i. Completeness in addressing the requirements of the Water Change Management Framework,
- ii. Adequacy of the assessment methods, and
- iii. Soundness and reliability of the conclusions of the assessments.

Completeness in addressing the requirements of the Water Change Management Framework

Regional Environmental Assessment

The Regional Environmental Assessment, completed as part of the NVIRP Landscape Scale Regional Assessments Report, identifies the potential effects of the implementation of NVIRP on water-dependent ecosystems and functions, including on listed species and communities, and listed migratory species.

The effects on regional groundwater and surface water resources and the effects on salinity are assessed. The technical hydrological assessments have been previously reviewed by the ERP as part of the Public Environment Report (NVIRP, 2010), and are comprehensive. They adequately address all surface water and groundwater impact pathways likely to result from implementing NVIRP, through the application of current river flow models and dedicated groundwater models.

The combined assessment is based largely on the work undertaken before and presented in the Public Environment Report (NVIRP, 2010), and takes an appropriate regional approach. This involves considering the range and diversity of wetlands and waterways expected in the GMID, and using a typology to describe patterns or emphasise the range of changes likely to result. The combined assessment also includes a risk assessment of the potential impacts of NVIRP on wetlands and waterways, by focusing on habitat types and biotic indicators, in lieu of countless site-specific evaluations. It then evaluates likely residual risks after implementation of available NVIRP risk management options, by projecting such changes to wetlands, pre and post NVIRP and evaluating

overall changes to individual types of wetlands at a regional scale, using the wetland classification system standard in Victoria. This is a generic approach that embraces all types of wetlands, and can be considered exhaustive.

All completed Environmental Watering Plans (EWPs) are reviewed and the cumulative effects of the impact of NVIRP on high environmental value waterways and wetlands are considered. The need for any additional management and mitigation measures is addressed, taking into account all of the risk and adaptive management provisions put in place by NVIRP, including as required by the WCMF.

The NVIRP Landscape Scale Regional Assessments Report addresses NVIRP's requirement to prepare a Regional Environmental Assessment Report and summarises the particular requirements, the assessment evaluations and the responses to each requirement.

Groundwater Assessment

The Groundwater Assessment is the other part of the combined NVIRP Landscape Scale Regional Assessments Report. It identifies and assesses the potential changes to regional groundwater as a result of the reduced channel outfalls, channel seepage and channel leakage associated with the implementation of NVIRP. As mentioned above, the technical hydrological assessments, including in relation to groundwater hydrology, have been previously reviewed by the ERP as part of the Public Environment Report (NVIRP, 2010), and are comprehensive.

The Groundwater Assessment identifies and describes the processes that may change the groundwater regime across the GMID as a result of the implementation of NVIRP. It also reviews the management and mitigation measures implemented or proposed by NVIRP, particularly through the Environmental Watering Plans in respect to actions designed to minimise and mitigate groundwater and salinity impacts on the 'at risk' waterways and wetlands. Additional mitigation and management measures consistent with the principles and commitments of the WCMF are also considered, however none were found to be necessary.

The NVIRP Landscape Scale Regional Assessments Report addresses NVIRP's requirement to prepare a Groundwater Assessment Report and summarises the particular requirements, the assessment findings and the responses to each requirement.

Combined Assessment

The ERP is therefore of the view that the combined assessment of regional environmental effects and groundwater impacts as presented in the NVIRP Landscape Scale Regional Assessments Report is as complete and thorough as can be expected without undertaking a major investigation, and that it adequately addresses each of the requirements of the WCMF, with respect to the Regional Environmental Assessment and the Groundwater Assessment.

The potential for exposing acid sulphate soils is addressed in this combined assessment but is expected to be reviewed separately, and with a regional NVIRP-related focus, on completion of studies by MDBA, as foreshadowed in the WCMF. This is a good example of the adaptive management approach which is an inherent characteristic of the WCMF.

Adequacy of the assessment methods

The ERP notes that much of the information used as the basis for the combined assessment in the NVIRP Landscape Scale Regional Assessments Report has been drawn from the Public Environment

Report (NVIRP, 2010) and associated technical documents, and considers this to be an appropriate use of information. The ERP has previously provided detailed advice on the adequacy of the technical methods of the two hydrological reports¹ (groundwater and surface water), four ecological reports² supporting the PER, and twelve EWPs already submitted, and the Condition 4 Assessment³. The ERP concluded that the assessment methods employed in all of these reports were technically sound and appropriate for purpose.

The ecological data used in the Regional Environmental Assessment is mostly site specific data whereas the Groundwater Assessment is based on landscape scale data. For the purposes of the NVIRP Landscape Scale Regional Assessment Report, these data are integrated, quite effectively. The Regional Environmental Assessment part of the combined assessment is based on typologies, and classifications, and uses conceptual models to link flow and groundwater characteristics to biological indicators, and build these up to the regional scale via habitat and wetland types: these indicators were selected for a combination of pragmatic and conceptual reasons, and their selection is consistent with many regional hydrologic impact studies.

A risk assessment approach is used for both the Regional Environmental Assessment and the Groundwater Assessment parts of the combined assessment. This includes the development of the likelihood and consequence criteria in a way that is specifically relevant and effective to the issue of NVIRP effects on the GMID region.

The NVIRP Landscape Scale Regional Assessments Report includes a useful summary of NVIRP's efforts in mitigating the impacts of NVIRP works and implementation, particularly through the EWPs.

The ERP concludes that the assessment methods employed in the NVIRP Landscape Scale Regional Assessment Report are sound and appropriate for purpose.

Soundness and reliability of the conclusions of the assessments

The ERP considers that the NVIRP Landscape Scale Regional Assessments Report has used a thorough and systematic approach, is well-argued and well-presented, and is supported through appropriate referencing.

The ERP considers that the conclusions reached in the NVIRP Landscape Scale Regional Assessments Report are sound and reliable, and that NVIRP has met the requirements of the WCMF with respect to the Regional Environmental Assessment and the Groundwater Assessment.

¹ NVIRP Expert Review Panel (2010). Assessment of Hydrological Changes from the operation of the NVIRP modernised GMID – Surface Water and Groundwater Hydrology – Advice from the NVIRP Expert Review Panel to the Secretary of the Department of Sustainability and Environment, 8th January, Victoria.

² NVIRP Expert Review Panel (2010). Operation Impact Assessment on Aquatic Fauna, Terrestrial Vertebrate Fauna, Flora and Ecological Communities – Advice from the NVIRP Expert Review Panel to the Secretary of the Department of Sustainability and Environment, 8th January, Victoria.

³ NVIRP Expert Review Panel (2011). NVIRP Regional Scale Assessments – Condition 4 Assessment – Advice from the NVIRP Expert Review Panel to the Secretary of the Department of Sustainability and Environment, 28th February, Victoria.

Final comments

The NVIRP Landscape Scale Regional Assessment Report notes that as well as the provision of environmental water recovered via NVIRP there are, or will be, a number of benefits resulting from NVIRP implementation that can be considered as NVIRP's legacy. This legacy includes:

- The development of the WCMF and associated practices that can provide the basis for enhanced and adaptive environmental management of wetlands and waterways across northern Victoria.
- Enhanced environmental management capability of agency staff involved in wetland and waterway management via involvement in the WCMF process.
- Enhanced capacity to deliver environmental water through a modernised system.

The ERP regards the identified legacy from NVIRP implementation as very positive and is of the view that the NVIRP Landscape Scale Regional Assessments Report is consistent with other documentation reviewed by the ERP in contributing to the achievement of a positive legacy.

Finally, the ERP is pleased to have had the opportunity to provide this advice in the interests of progressing the environmentally responsible operation of the modernised irrigation system for which NVIRP has responsibility.

Sincerely,



Denis Flett

Chair

Northern Victoria Irrigation Renewal Project Expert Review Panel

Copy To:

1. Murray Smith, Chief Executive Officer of the Northern Victoria Irrigation Renewal Project

