A REPORT ON THE LANCE CREEK CATCHMENT

A PROPOSAL FOR PROCLAMATION PREPARED FOR CONSIDERATION BY THE LAND CONSERVATION COUNCIL

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INTRODUCTION

The Land Conservation Council recommended in the final recommendations for the Melbourne Study Area, that the catchment to Lance Creek reservoir be investigated by the Soil Conservation Authority and if appropriate recommended for proclamation.

This report is presented for consideration by the Land Conservation Council and is the result of such an investigation. The report recommends the proclamation of the catchment to Lance Creek reservoir.

SUPPLY SYSTEM

State Rivers and Water Supply Commission is the responsible authority for the management of the water supply from Lance Creek reservoir.

The reservoir is located in allotments 8, 50, 51 and 52 in the Parish of Kongwak, Shire of Korumburra. situated about 20 km north of Wonthaggi, on the north side of Wonthaggi to Korumburra road between Korrine and Kongwak. The reservoir has a capacity of 15920 Ml and supplies water to Wonthaggi and Cape Patterson consumers. In addition, water is sold to Inverloch Water Authority.

The water runs from the outlet tower into a chlorination plant adjacent to the reservoir, it is then pumped 19.2 km to two service basins to the north of Wonthaggi. Water is also supplied to Cape Patterson from the service basins. Water for Inverloch is derived prior to the chlorination plant and piped to Inverloch.

Streams within the catchment are seasonal and generally dry during December to March, and in some years even during April.

It is also proposed to raise the dam wall to increase the storage capacity in the near future as the reservoir has insufficient capacity in drought years. This would not affect the status of the catchment as presented in this report.

WATER QUALITY AND TREATMENT

State Rivers and Water Supply Commission monitors water quality from the reservoir at the inlet and the outlet tower as well as from other points in the supply system beyond the reservoir.

Most of the physical and chemical water quality parameters meet the standards. The presence of large numbers of dairy cattle in the catchment results in bacteriological counts of total Coliform and faecal Coliform at levels that warrant disinfection of water from the reservoir. Chlorination to destroy pathogens and screening to remove coarse material such as leaves, etc., is carried out by the Commission.

THE CATCHMENT

(a) General

The catchment supplying Lance Creek reservoir covers approximately 20.4 km^2. It is located in West Gippsland at 38^o 31 latitude south and 145^0 39 longitude east. The reservoir is located at the south-east corner of the catchment on the north side of the road from Wonthaggi to Korumburra. The catchment is about 7.2 km long from north to south and about 2.7 km wide from east to west.

There are no towns within the catchment, although a few small villages such as Krowera, Burndale and Glen Alvie are situated on the boundaries of the catchment.

The elevation of the catchment ranges from 75 m, at the reservoir to 255 m at its highest point.

The nearest major town is Wonthaggi which is about 20 km south of the centre of the catchment.

The catchment is about 90 km east of Melbourne within the Melbourne Study Area of the Land Conservation Council.

(b) Geology and Topography

The Lance Creek catchment is situated between the Almurta fault in the north-west and the Kongwak fault in the south. The streams emerge from the higher country in the north-east and run southwards. Lance Creek is a centrally located stream with tributaries joining it from both east and west.

Geologically the catchment area is occupied by rocks of the Strzelecki group. These rocks are of Cretaceous age. The catchment is situated on an uplifted and tilted block which has been deeply dissected by streams. The streams have formed V shape valleys and the divides are moderately flat. The bed-rock consists of sandstone, mudstone, siltstone, conglomerate and occasional black coal. This type of bedrock is liable to landslide.

(c) Climate

The mean annual rainfall at Glen Alvie on the north-eastern boundary of the catchment is 1,138 mm.

February is the driest and probably the hottest month of the year with an average rainfall of 54 mm followed by January with 66 mm.

An average maximum of 25^0C can be expected either in February or January. The winter average maxima ranges between 10 to 12^0C. The minimum temperatures appear mostly in July often under 5^0C over most of the catchment.

Growing season in this area is quite long and almost continuous. It is rarely less than 10 months. The growth is retarded during June and July due to low temperatures.

(d) Soils and Vegetation

Soils in the catchment have developed from cretaceous sediments. The majority of the soils can be described as shallow mottled yellow gradational with an average depth of 0.4 m but deeper on gentle crests and slopes. The soils have a clay loam surface texture with a high permeability. Soils on terraces and flood plains have developed from older and recent alluvial deposits which have a mottled yellow deep duplex profile with moderate permeability.

Soils derived from cretaceous parent material are subject to landslides and some landslides are evident in the catchment. More on this will be included in the land use determination report.

The whole catchment area has been cleared for agricultural use around the turn of the century, and there is very little of original vegetation remaining.

Pine and cypress trees have been extensively introduced throughout the catchment forming windbreaks for stock and farm house protection.

Pastures usually consist of introduced species such as perennial rye grass, white clover, subterranean clover and cocksfoot.

LAND USE AND LAND TENURE

The storage area and a buffer of approximately 20 m width surrounding the storage are public land. The remainder is in freehold ownership. Currently, the majority of the catchment is grazed by dairy and beef cattle roughly in equal proportions and very few sheep are kept in the catchment.

Hard surfaced areas include farm houses, stock yards, milking sheds and access roads.

A small proportion of some properties is used for cropping. There are currently no instances of cropping which would be in conflict with the water supply catchment requirements.

The average size of holdings ranges from 40 to about 250 ha. It appears that at the present time there is a tendency towards the amalgamation of small farms to create larger holdings rather than for subdivision to occur.

HAZARDS TO WATER SUPPLY

Soils developed on cretaceous parent rocks are unstable and subject to landslides. Clearing of the original forest in this catchment has aggravated this situation. Though some landslides were observed in this catchment, they don't appear to constitute a serious hazard to the water supply.

Unsealed roads on the north-east side of the catchment, not far from the reservoir are a source of siltation to the reservoir.

Cattle have access to all stream lines, drinking points on streams become highly erodible due to loss of vegetation.

Pollution of the water by cattle occurs to a considerable extent.

The above points will be discussed in more detail in the land use determination report.

LAND CONSERVATION COUNCIL RECOMMENDATIONS FOR WATER PRODUCTION

The final recommendations for the Melbourne Study Area state "that all domestic water supply catchments within the study area should be investigated by the Soil Conservation Authority and, where appropriate, recommended for proclamation by the Land Conservation Council, in order to ensure a uniform procedure for land use planning within these areas".

The report states further "that in the case of the locations listed below and shown on the maps (all these locations being within catchments for which no land use determinations have been made) the present tenure and management of public land continue for the time being and that once a land use determination has been made, the following areas:

(i) the storage areas

(ii) diversion works

(iii) associated facilities

(iv) the buffer strips around diversion works and storages, as defined in the land-use determination

(v) any other allotments as specified below

be used for

(a) water supply purposes

(b) other activities permitted by the water supply authority after consultation with the Soil Conservation Authority and the Environment Protection Authority

and that these areas be permanently reserved under section 14 of the *Land Act* 1958 for water supply purposes, and be managed by the water supply authority named.

Note: (i) The buffer should be wide enough to prevent direct pollution, to filter overland flow of water, and to control access. Its width will vary to suit differences in ground slope, soil type, vegetative cover, adjoining land use and type of facilities available for treating the water".

D 88 Lance Creek reservoir, State Rivers and Water Supply Commission.

The area recommended for proclamation includes the catchment, of the Lance Creek reservoir.

RECOMMENDATIONS

1. That the Authority approves this report and forwards it to the Land Conservation Council for consideration;

2. That the Land Conservation Council recommends to the Governor-in-Council that the Lance Creek Water Supply Catchment, as shown on plan S-737, be proclaimed under section 5(1)(b) of the *Land Conservation Act* 1970 and section 22(1) of the *Soil Conservation and Land Utilization Act* 1958.