


Department: Water Affairs and Forestry

Presentation on:

PROCESS FOLLOWED BY DWAF TO DETERMINE THE "BUFFER LINE" FOR STATE OWNED DAMS

by
Johann Geringer (CE:OA:E)

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Department: Water Affairs and Forestry
Directorate Options Analysis
Presentation by J.J. Geringer (CE:OA:E) on:
Process followed by DWAF to determine the "Purchase Line" for state owned dams

Different buffer lines during project cycle

Pre-feasibility and Feasibility studies

Buffer line estimated as High Flood Level at spillway plus constant vertical value in excess of 1.5m – no Backwater Profile calculated.


Detail design

Buffer line determined from calculated Backwater Profile for High Flood (1:100 year) plus DWAF "purchase line criteria".

Construction

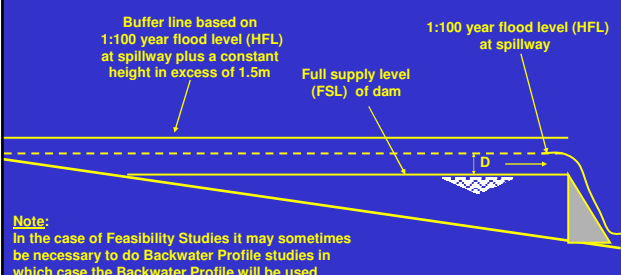
Purchase line determined by a series of straight lines between beacons set by a land surveyor based on:

- the high flood backwater profile plus DWAF "purchase line criteria";
- land requirements for construction and operational purposes;
- approval by the Board on Land Matters of land in excess of minimum requirements if viability is problematic



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Buffer line assumed for Pre-feasibility and Feasibility studies




Buffer line based on 1:100 year flood level (HFL) at spillway plus a constant height in excess of 1.5m

1:100 year flood level (HFL) at spillway

Full supply level (FSL) of dam

Note:
In the case of Feasibility Studies it may sometimes be necessary to do Backwater Profile studies in which case the Backwater Profile will be used




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Buffer line determination during Detail Design Stage "Theoretical purchase line"

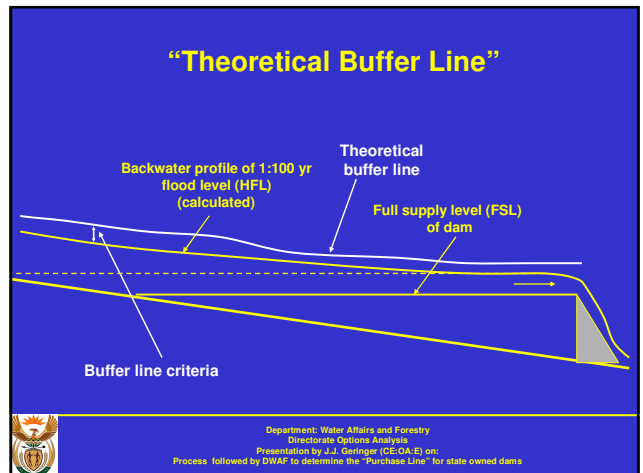
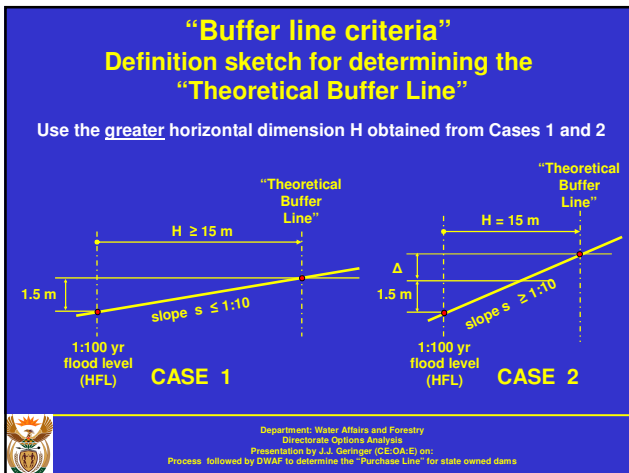
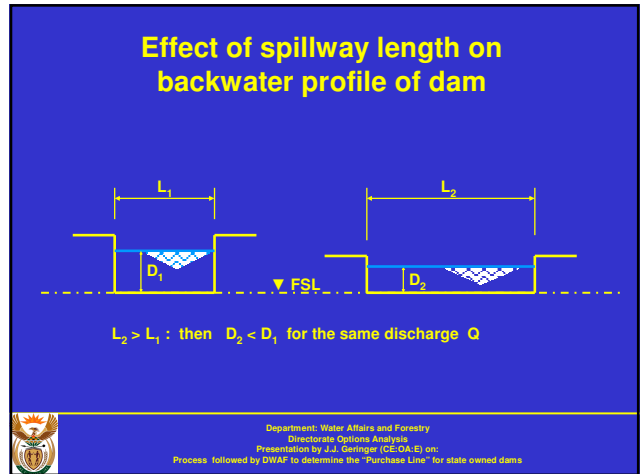
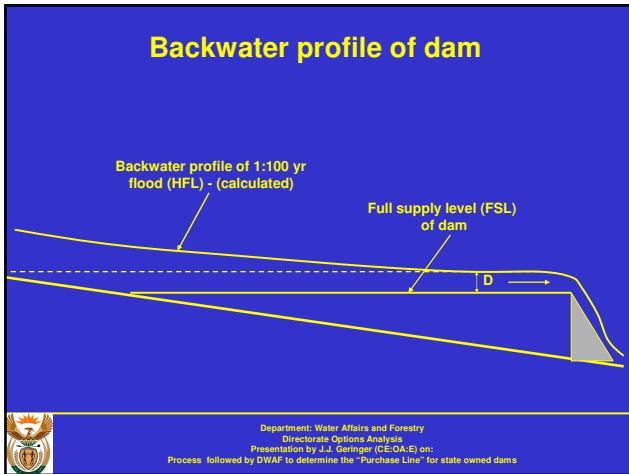
- Requires accurate assessment of the dam's Backwater Profile for the High Flood line (1:100 year flood event) with final spillway configuration

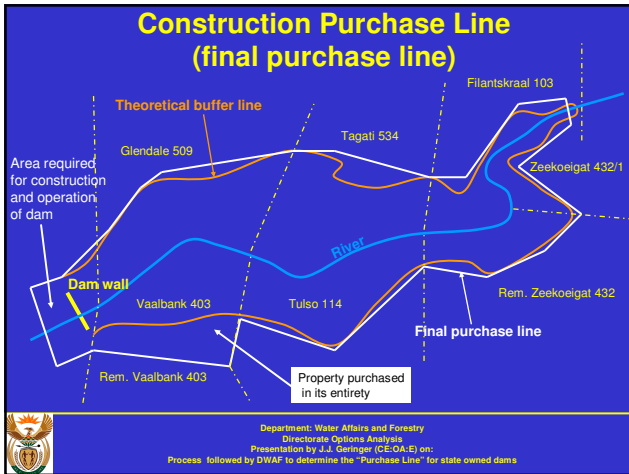
and

- Application of the DWAF "buffer line criteria" at each point along the Backwater Line.



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- ### Other aspects regarding the Purchase Line
- Further areas, not depended on the "Theoretical Buffer Line", may also have to be acquired:
- Construction site
 - Area required for the dam wall and appurtenant works;
 - Area for offices, stores, laboratories, workers village, etc;
 - Construction plant and materials stockpiling.
 - Properties acquired for environmental reasons
 - Areas to ensure ecological sustainability (mitigation measures)
 - Access roads to dam and spots around the lake
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The End

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