A2.3.5. Imminent Failure Condition.

There can still be a use in assessment and reporting for an IFF type term. In risk assessment it is in effect the condition which is estimated for a reasonable conditional probability of failure.

There is a proposal to still use the IFF term but redefined in probability terms as: IFF: the flood event that could be reasonably expected to cause failure of the dam.

With "reasonably expected" defined as an equal likelihood (0.5 probability) that the dam would survive the event, or fail during the event.

The IFF so calculated could be greater than, or less than, the DCF, depending on the type of dam, the nature of the crest and the nature of the foundations.

A2.4. SPILLWAY ARRANGEMENTS.
(Refer. sub-section 4.4, SDF & Spillway Provisions)

A2.4.1. Proposed Dams.

A2.4.1.1. General Considerations.

The initial considerations will relate to the proposed purpose for the dam and the storage and yield requirements. The dam arrangement will then relate to the site topography, hydrology, geology, potential for slips and seismic potential.

The site conditions, particularly foundations, and availability of materials, rock, filters, core material and aggregates, will influence the selection of the type of dam.

The required supply from the dam (water supply, and/or power or flood attenuation) will set the capacity relative to yield, which, in conjunction with reservoir basin capacity and site limitations, will then set the storage level.

A2.4.1.2. Spillway Location.

The trend for some years in Australia has been to construct earth and rockfill dams because of available sites, materials, climate and the economies of placing rock and earth.

A site is then required for the spillway/s. This may be combined with use of the excavated material from the spillway in the dam (Dartmouth, Victoria; Copeton, NSW; Googong, ACT). The location is preferably in an abutment, or nearby saddle, although tunnels have been used.

At Crotty Dam, Tasmania, a concrete chute has been successfully constructed on the downstream face of a rockfill dam.

Where sites are suitable for concrete, or roller compacted concrete dams, spillway provisions can be incorporated within the main dam structure (New Victoria, Western Australia, Cadia Dam, NSW).

A2.4.1.3. Gated Spillways.

The trend throughout the world is now towards ungated spillways because of concerns on potential misoperation, leading to possible legal action by communities downstream on flood damages from release of floodwaters; or dam failure due to gate malfunction or misoperation.

A2.4.1.4. Spillway Arrangement for AFC.

A preliminary study of conditions downstream will indicate potential consequences and Hazard Rating. This information can be used, with a scoping risk assessment, or prescriptive standard, to indicate an order of AFC relative to the flood frequency estimate for the site.

The setting of the dam crest level above FSL is then a balance of economics between spillway alternatives, with flood routing, to assess flood surcharge and possible "dry" freeboard for wave action.