



Seawater Dispersion Study, Sture Crude, Norsk Hydro, Norway

The study is initiated to determine the best location of the seawater intake and to determine the minimum distance between the inlet and the outfall orifice to prevent re-circulation of cooling water and to determine the minimum required depth of the outlet. The minimum depth of the outlet has to satisfy the criterion that seawater temperature does not increase by 1° C at 100 m distance. The cooling water discharge is 2600 m³/hr with a temperature rise of 10° C.

The figure shows the temperature dispersion due to near field mixing. The maximum increase of the surface temperature is 0.45° C. The maximum temperature rise at 100 m distance (represented by the circle) is 0.35° C. The ambient current in this calculation is 10 cm/sec. On the basis of the calculations it was decided to construct the inlet at the same cross section as the outlet, but at a deeper level.

Client
Norsk Hydro, Norway

Location
Sture Crude, Norway

Date
1998 (study)

Services
determination of environmental and hydraulic conditions, building and calibrating of numerical flow model FINEL3D, calculation of temperature dispersal due to near field and far field mixing and bathymetric survey