



**RAUVITHERM – FLEXIBLE PRE-INSULATED PIPING SYSTEM**  
CASE STUDY OF GEOGRAPHE LEISURE CENTRE BUSSETON  
WESTERN AUSTRALIA

# Project:

## GEOGRAPHE LEISURE CENTRE BUSSELTON WESTERN AUSTRALIA

Pipework: 125mm RAUVITHERM UNO

Owner: City of Busselton

Contractor: CD Drilling

Consultant: SLR Consulting Pty Ltd

SLR Consulting was engaged by the City of Busselton (COB) to assess the potential for the installation of a cogeneration system for the City of Busselton's Geographe Leisure Centre (GLC). The pool complex consists of one indoor swimming pool (480 m<sup>2</sup>) and one outdoor Olympic swimming pool (480m<sup>2</sup>) which was not heated plus air conditioning (heat) to the indoor pool area with the option to air condition other areas as a stage 2 or 3. The number of swimmers per day was estimated at 1000 for the indoor and 600 for the outdoor pool. Upon completion the investment will extend the use of the resource allowing year round use whilst reducing operating costs.



### Requirements:

A study was commissioned by the City of Busselton to review various options to improve the operating costs and reduce greenhouse emissions for the Geographe Leisure Centre. The City selected the Geothermal Energy Green Initiative conducted by SLR Consulting Pty Ltd involving the use of heat energy from Busselton Water supply bore by utilizing water at approximately 34°C.

### Conclusions:

The RAUVITHERM pipe delivers 370Kw of geothermal heated water to the Aquatic Centre approximately 600m away. The total flow rate delivered was 20 l/s at a temperature of 34°C which is sufficient to maintain the 50m indoor pool at 28°C and the outdoor pool at 26°C



### Solutions:

Geothermal energy is the natural heat from the earth present in the earth's core. From the surface the natural increase in temperature is on average between 3°C- 4°C per 100m.

A multiple closed loop system was selected whereby hot water could be pumped to the GLC site and heat transferred via heat exchangers before being returned to the Busselton Water storage tank.

1,200m of 125mm RAUVITHERM UNO and Fusapex Electrofusion fittings were used to convey thermal water from Busselton Water storage tanks to the Geographe Leisure Centre.

RAUVITHERM was selected because it could provide a continuous and effective thermal break between the pumped fluid and the external environment for the full length of the pipeline installation. This resulted in almost negligible thermal losses despite a total installation length of 1,200m.

Following completion of the project it is estimated that a total energy savings would be in the order of \$70,000 AUD per annum with an estimated payback period of 6.2 years. Estimated Greenhouse Gas CO<sub>2</sub>Emission savings would be 447 tonnes per annum.



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