MMI Engineering has specialist knowledge in the application of CFD for environmental, safety and process applications.
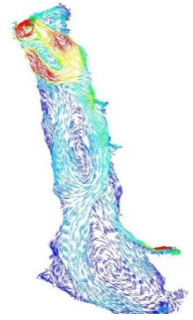
The CFD team are highly experienced in the use of generalised CFD codes, such as CFX and Fluent, to solve problems associated with surface and waste water, dispersion and gaseous release, internal equipment flows and external building flows.

This includes single and multiphase flow problems, solids sedimentation, liquid and gaseous contamination, and thermal assessments with radiation.

Surface Water

Clean water modelling experience includes:

- Tracer studies in service reservoirs
- River and reservoir flows with dilution / dispersion of pollutants & thermal stratification
- Disinfectant contact tanks
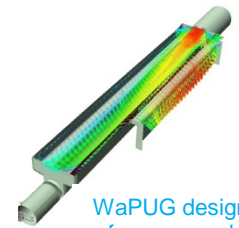- Ozonation & UV

Wastewater

The capability includes approaches for modelling liquid solid effluent systems with multiphase techniques. Applications include:

- Mixing in aeration lanes
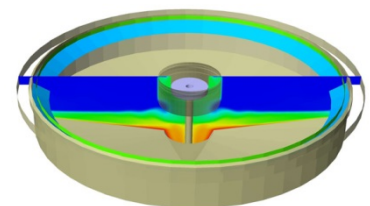- Separation efficiency of CSO's
- Primary & secondary clarifiers

Ventilation, Dispersion & HVAC

The team has carried out many assessments for the flow of air and hazardous gases through process systems, ventilation systems and within buildings. Previous studies include:
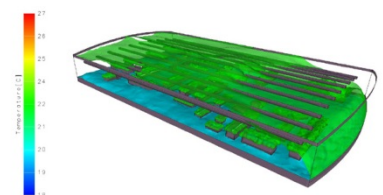
- External wind loadings on buildings
- Dispersion of hydrogen in waste silos
- Assessment of internal ventilation for comfort
- Design of efficient domestic heat exchangers

Value Added

CFD provides the capability to assess the adequacy of designs prior to construction. It is an excellent optimising tool and can help with a thorough understanding of flow mechanisms for safety and environmental assessments.

Clients

CFD studies have been undertaken for clients such as Montgomery Watson, United Utilities, Thames Water, Severn Trent, Yorkshire Water, Huntsman, AEA Technology and BNFL.

Water surface velocity vectors for lower Rivington reservoir in a crypto release

WaPUG design for screened Combined Sewer Oveflow (CSO)

Solids stratification of activated sludge in a secondary clarifier

Isosurfaces of temperature in a proposed air traffic control centre