

SMOKE PLUME MODELLING

 Why do the fire services need capability in this area?

Fire Fighter Safety

Increased community expectations





CURRENT ACTIONS

 Current steps being taken by fire services to improve the provision of information to the community:

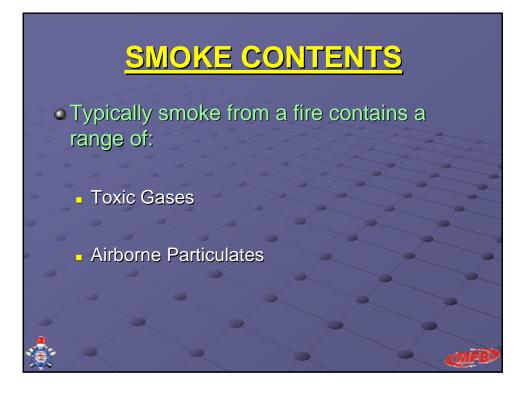
- Increased levels of employed expertise (eg, scientists and engineers)
- Enhanced relationships with other agencies working in this area (eg, EPA, Health Department)

CURRENT MODELLING

• Fire services currently use modelling at hazmat incidents for gases and vapours.

- Examples of models used include:
 - Aloha (gases and vapours)
 - Auschem (gases and vapours)
 - HPAC (chemical warfare agents)

 Most fire services cannot model smoke plumes at structure fires







• Fire services have instrumentation to monitor some toxic gases at structure fires. Examples include:

- Carbon monoxide
- Hydrogen sulphide
- Hydrogen cyanide
- Oxides of nitrogen

time

Volatile organic compounds

• Fire Services cannot identify particles in real

SMOKE PLUME MODELLING CURRENTLY AVAILABLE

• The Bureau of Meteorology can model smoke plume for rural wildfires.

 Some research being done to model smoke plume from urban fires.

IMPORTANCE

- The ability to model smoke plumes is assuming increasing importance
- Given safety and community concerns it will become a core activity for fire services
- Smoke plume predictions will become vital in assisting other agencies eg, EPA, DHS
- Provide information on areas near the fire that may need "protect in place" actions

WHAT WE WOULD LIKE A model where the following could be entered at a structure fire: •Current weather conditions

- •Fuel types
- •Type of structure
- Area of fire

And obtain a reasonable prediction of smoke travel, smoke contents and areas likely to be affected