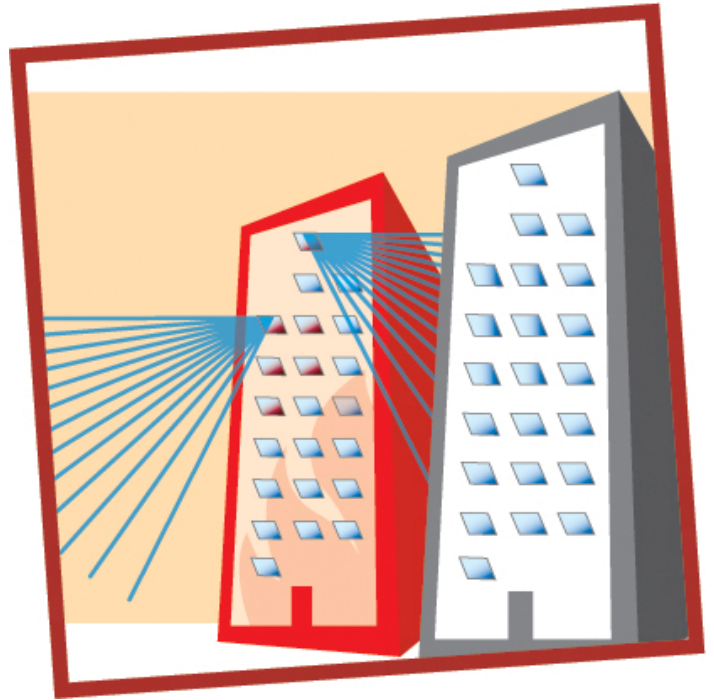


WORKSHOP REPORT



National Workshop on Conservation of Water in Fire Protection Systems

19 – 20 Nov 2007

An Initiative of:

- Fire Protection Association Australia
- Water Services Association Australia



**WATER SERVICES ASSOCIATION
OF AUSTRALIA**



FPA Australia and WSAA recognise that water conservation across the fire protection industry is a community priority.

Fire protection systems must be ready at all times and this requires the use of some water particularly during maintenance and testing. However, the use of this water must be minimised while still ensuring that systems will always operate effectively.

Water remains the most effective and efficient fire suppression resource. Fire sprinklers and pumps also save millions of litres of water as well as lives and property by quickly extinguishing fires before they can develop.

Fire Protection Association Australia (FPA Australia)

FPA Australia is the major technical and educational fire safety organisation in Australia. It combines skills and technical expertise from all areas of fire protection and is supported by a number of technical committees.

Water Services Association Australia (WSAA)

Water Services Association of Australia (WSAA) is the peak body of the Australian urban water industry. Its 30 members and 31 associate members provide water and wastewater services to approximately 15 million Australians and many of Australia's largest industrial and commercial enterprises.

Comments on this report should be forwarded to:

John Lambert
Fire Protection Association Australia
GPO Box 1049 Box Hill
VIC, Australia, 3128

Email: environment@fpaa.com.au

Claude Piccinin
Deputy Executive Director
Water Services Association of Australia
PO Box 13172 Law Courts
VIC, Australia, 8010

Email: claudio.piccinin@wsaa.asn.au

Table of Contents

1	INTRODUCTION.....	3
2	WORKSHOP PROCESS.....	4
3	SCENE SETTING PRESENTATIONS.....	5
3.1	FIRE PROTECTION INDUSTRY	5
3.2	WATER REGULATION & SUPPLY	5
3.3	FIRE SERVICES	5
3.4	BUILDING REGULATIONS	6
4	WORKING GROUPS.....	7
5	DISCUSSIONS	8
5.1	HOW CAN REGULATIONS (LEGISLATION) SUPPORT WATER CONSERVATION AND FIRE SAFETY	8
5.2	HOW CAN WE “INCENTIVISE” STAKEHOLDERS TO ADOPT WATER CONSERVATION & FIRE SAFETY MEASURES?.....	9
5.3	WHO ARE THE STAKEHOLDERS (IN WATER CONSERVATION AND FIRE SAFETY) AND WHAT IS AT STAKE FOR THEM?	9
5.4	WHAT TECHNICAL OPTIONS (FOR WATER CONSERVATION AND FIRE SAFETY) ARE POSSIBLE AND WHAT ARE THEIR LIKELY COSTS?.....	11
5.5	WHY USE WATER, WHAT ELSE COULD WE USE?.....	11
6	CONCLUDING DISCUSSIONS AND OUTCOMES.....	12
6.1	OVERARCHING ISSUES	12
6.2	RECOMMENDED FOLLOW-UP ACTIONS	12
	ATTACHMENT 1: PARTICIPANTS.....	14
	ATTACHMENT 2: WORKSHOP PROGRAM	15
	ATTACHMENT 3: OUTCOMES FROM WORKING GROUP AND SUBSEQUENT DISCUSSIONS.....	16

1 Introduction

In August 2007 FPA Australia published a discussion paper on *Conservation and Sustainable Use of Water in Fire Protection Systems*. Since that time FPA Australia, WSAA and others have made significant progress in identifying opportunities and issues to reduce the amount of water use in fire protection systems.

To achieve maximum water saving while also ensuring fire safety, FPA Australia and WSAA recognised that there was a need for all stakeholders to develop a clear understanding of the issues and opportunities. The two organisations agreed to hold a National workshop on the conservation and sustainable use of water in fire protection to bring together representatives of key stakeholders to assist in identifying the issues and a pathway forward.

The workshop would:

- identify the key issues associated with water conservation and fire protection, and,
- develop a pathway to progress this issue in a meaningful and coordinated way.

A list of key stakeholder groups was prepared and invitations sent. As a result a large number of key stakeholder organisations were represented at the workshop which was held in Bondi Beach, NSW on 19 – 20 November 2007. A list of the representatives is attached (Attachment 1).

Several organisations were unable to attend the workshop but asked to be kept informed.

This paper highlights the outcomes of the National workshop.

2 Workshop Process

Many issues impact on water conservation and fire safety. Changes in testing regimes from weekly to monthly testing may, for example, significantly reduce water use but unless well understood could impact on building approvals and insurance. Pressure management may also save water in town water mains, but could impact severely on existing systems and even new systems design and operation.

To provide background information to stakeholders on the range of issues, individuals from four different sectors were asked to give scene setting presentations.

- Fire Protection Industry
- Water Regulation and Supply
- Fire services
- Building Regulations.

Following these presentations and short question times, workshop participants were divided into four working groups and each group was given a subject topic based on the four presentations.

The members of each working group were selected by the organising committee to ensure that there were a core group of participants from the particular topic area and a mixture of participants from other sectors. This enabled each working group to view issues more broadly than if only participants from the particular topic area participated.

Each working group was given four focus questions to address.

1. *How can regulations (legislation) support water conservation and fire safety?*
2. *How can we “incentivise” stakeholders to adopt water conservation and fire safety measures?*
3. *Who are the stakeholders (in water conservation and fire safety) and what is at stake for them?*
4. *What technical options (for water conservation and fire safety) are possible and what are their likely costs?*

Each group was also able to identify one additional question to discuss.

Following the working group discussions each group reported to the workshop. These reports were followed by discussions and the facilitator recorded the key issues identified.

After the working group presentations the organising committee combined the issues identified into a single list. A panel comprising the President of FPA Australia Peter Johnson and the Executive Director of WSAA Ross Young then led a discussion on these issues.

3 Scene Setting Presentations

Four scene setting presentations were given. Each presenter was asked to provide an overview of the status of water conservation and fire safety as seen from the perspective of their sector. They were also asked to highlight key issues and opportunities.

3.1 Fire Protection Industry

*Roger Thomas, Regional Technical Manager
Tyco Fire & Security Australia/New Zealand*

Key issues raised:

- A 90% savings in water used during sprinkler testing compared to current methods is possible and should be the aim of all stakeholders
- Monthly testing of sprinkler systems should be applied instead of the current weekly testing
- Water recycling in fire protection systems should be encouraged
- There should be a unified approach to water conservation across Australia
- Fire system standards should recognise pressure management as a reliable design point.

3.2 Water Regulation & Supply

*Stephen Kay, Program Manager, Pressure Management
Sydney Water*

Key issues raised:

- Water must be better managed and accounted for, and this leads to a range of new challenges and opportunities for all stakeholders
- There is a need to provide leadership in managing water usage, and all stakeholders at this workshop need to provide that leadership
- Water authorities (governments) will be moving the costs for water conservation to users and this will place responsibilities on building owners & other users.

3.3 Fire Services

*Graeme Thom, Executive Manager
State Community Safety Authority
Queensland Fire & Rescue Service*

Key issues raised:

- There is a need to take the challenges for water conservation to higher levels (including politicians)
- We must continue to recognise that water protects life and firefighters
- In promoting water conservation, we must avoid outcomes that could lead to increased water usage (i.e. some buildings are currently testing less frequently than monthly)

- There is a need for targeting cost effective water conservation categories
- Can we consider the question “do we have to use water”?
- There is a need to consider the question “water conservation at what cost?”
- There is a need to consider legislation for water conservation.

3.4 Building Regulations

*Haydn Wood, PlumbSmarter Project Manager
Consultant, Regulatory Development
Building Commission (Victoria)*

Key issues raised:

- There are still many unknowns, which means we need to pursue better research and data collection
- There is a need to consider ways to “incentivise” stakeholders
- Moving from weekly to monthly testing can save considerable amounts of water, but we would need to better understand the costs & other issues associated with such a change
- Water regulators need to understand all of AS1851 (not just the water components)
- Too much focus on research could lead to delays – the Building Commission is embarking on doing some case studies, so these and other case studies can be used to obtain information on how to achieve water savings.

4 Working Groups

The participants were divided into four workshop groups.

- a) Fire services
- b) Maintenance and testing of sprinklers, pumpsets and hydrants
- c) Fire system design, including sprinklers, hydrants, hose reels and pumps
- d) Town mains water supply including pressure management and metering.

Participants were allocated to these workshop groups by the organising committee to ensure that there was a broad spread of interests represented, as well as a core group of participants from the particular sector.

Each workshop group was asked to address the same four questions.

1. *How can regulations (legislation) support water conservation and fire safety?*
2. *How can we “incentivise” stakeholders to adopt water conservation and fire safety measures?*
3. *Who are the stakeholders (in water conservation and fire safety) and what is at stake for them?*
4. *What technical options (for water conservation and fire safety) are possible and what are their likely costs?*

Workshop groups were also advised that they could identify one other issue.

Each workshop group recorded the outcomes of their discussions on flip charts and subsequently presented those outcomes to the whole workshop.

Workshop participants discussed each report in detail and these discussions were recored by the facilitator.

The outcomes from each workshop group are summarised in Appendix 2.

5 Discussions

The following summaries are prepared from the presentations and subsequent discussions on each working group topic. They reflect the discussions at the time.

5.1 How can regulations (legislation) support water conservation and fire safety

Discussions under this heading generally did not differentiate between regulations under legislation and other controls such as those that may be applied by water authorities. However, with this qualifier it was clear that most, if not all participants, believed that some form of controls are need to support water conservation.

A common theme from the working groups was that controls needed to be consistent and coordinated. For example, supply authorities and users must work together to ensure that controls reduce water consumption without compromising fire safety. Regulations should also set targets and drivers for water conservation and take into account costs and practical considerations associated with the installation, operation and maintenance of systems.

Regulations should be able to respond quickly to opportunities to conserve water and may need to be streamlined to prevent unintended regulatory impacts such as a reduction in fire safety. They must also be based on factual knowledge of costs and other impacts, although they should not be delayed for excessive periods while research and development is undertaken. The use of case studies could assist in reducing the time to bring controls into force. Once regulations and other controls were developed most participants supported the need for enforcement to ensure that they are applied consistently.

The adoption of monthly testing of sprinkler systems in place of weekly testing was frequently mentioned as a means of conserving water. It was also noted that AS 1851:2005 allows monthly testing.

Water authorities may also be able to apply conditions limiting water use or applying various water saving strategies before granting approval to connect.

Controls for existing and new buildings may also need to be different or have different time scales.

5.2 How can we “incentivise” stakeholders to adopt water conservation & fire safety measures?

Participants discussed the word “incentivise” and agreed that it should apply to a wide range of actions to support and encourage water conservation.

Education and communication programs were identified as playing an important role in supporting water conservation. These programs should encourage water conservation, providing real information on water savings, costs and strategies. The use of case studies was highlighted as an effective means of educating stakeholders. Case studies also highlight costs and technical issues as well as informing on potential benefits such as less frequent testing, water availability for other purposes and the recognition as a responsible corporate organisation.

The workshop noted that education should provide information to all stakeholders, however building owners were identified as a priority target group.

As well as education, a number of direct incentives should also be considered. Principal amongst these is likely to be the introduction of charges for water. At present most water used in fire protection is not metered. Water authorities made it clear that metering is to be applied broadly and that charging for water is almost certain to follow. This will move some of the real water costs from the community to building owners and will provide a direct incentive for building owners to reduce water consumption.

Other incentives discussed included:

- green star programs for water saving in fire protection systems
- better financial/tax/depreciation programs for the costs of water conservation
- insurance incentives

Workshop participants noted that growing community and media concern about water may lead to pressure being placed on building owners, fire protection companies, regulatory agencies and water authorities to tighten regulations and controls. The workshop noted that this is more likely to occur if actions are not voluntarily taken by stakeholders.

5.3 Who are the stakeholders (in water conservation and fire safety) and what is at stake for them?

Stakeholders

Participants identified a wide range of stakeholders. Principal amongst these are:

- Water authorities

- State, territory and local government building regulators
- Other relevant government agencies such as environmental agencies
- ABCB
- Building owners and occupiers
- Building engineers and architects
- The fire protection industry including
 - Fire system service providers
 - Fire system design and installation companies
 - Fire system certifiers
 - Product manufacturers
- Fire Brigades
- Insurers
- Unions
- Standards Australia

The workshop also noted that the community is a key stakeholder and its importance will continue to increase as concern about water and water restrictions increases.

What is at Stake?

The working groups identified that there were a number of potential outcomes associated with water conservation. These included outcomes arising from not taking action and outcomes associated with taking action.

Workshop participants recognised that a possible outcome of water conservation is an increase in the risk of fire. This could be due to a limitation on the availability of water, a reduction in the frequency of system testing or increased complexity associated with the recycling of test water. Participants agreed that water conservation actions must not reduce fire safety.

It was also noted that insurance costs could increase unless there was adequate research showing that water conservation methods adopted did not compromise fire safety

Not taking action to reduce water use would be expected to lead to community concerns and loss of reputation to building owners and fire protection companies. Lack of action could also result in governments and water authorities facing community concerns and this could lead to them taking action to require water savings.

Currently building owners and occupiers are not charged for water used for fire protection. As most water authorities have indicated that this water will be charged for in future, lack of action to reduce water consumption will increase costs to building owners and occupiers.

5.4 *What technical options (for water conservation and fire safety) are possible and what are their likely costs?*

Workshop participants raised a number of technical options to conserve water while maintaining fire safety. However it was also noted that before any new technologies are applied they must be shown to not jeopardise the reliability of fire safety systems or other health and safety standards. Technologies must also be fully costed and demonstrated before being applied.

Some technologies identified were aimed at increasing the effectiveness of water such as through the use of water additives or better means of applying water such as using water mist technologies. Other technologies proposed better management of water uses such as through the careful zoning of sprinkler systems reducing water loss during system drain downs.

Sprinkler systems were identified as an area where the application of a range of technologies could reduce water consumption, particularly during testing. For example pumps and tank systems could recycle test water and variable speed pumps could reduce water use due to excess pressures.

Pressure management of town mains by water authorities also provides opportunities to apply efficient designs for pump systems to manage water during testing of systems.

Other options considered were to use alternative water supplies in fire systems such as salt water or recycled water.

5.5 *Why use water, what else could we use?*

Although most participants agreed that water will remain the major fire protection and fighting agent, two working groups considered it appropriate to ask – “why use water, what else could we use?” This question was considered as being fundamental to both the water and fire protection industries.

Both working groups noted that water is by far the most readily available fire extinguishing agent and is safe, effective, and reliable in most situations. It also has a low environmental impact.

Both groups recognised that there are alternatives to water such as chemical retardants and gases. They also recognised that there are technologies that can be applied to use water more efficiently. However, these fire extinguishing agents can only be used in specialised situations and where vast quantities of agent is not required.

Both groups therefore concluded that there is no alternative to water for most fire situations.

6 Concluding Discussions and Outcomes

Following the working group discussions representatives from FPAA and WSAA collated and summarised the key points raised. These were presented to the workshop participants by a panel comprising Peter Johnson and Ross Young.

6.1 *Overarching Issues*

The panel identified four overarching issues that will influence and guide future actions. These were generally accepted by all participants.

1. Different conservation strategies will be needed for new and existing buildings
2. Water will continue to be available for fire fighting and protection in the foreseeable future
3. This group (of participant stakeholders) has a responsibility to use water in the most efficient ways
4. Metering is occurring now and charging for usage is inevitable with the likelihood that prices will increase in the future.

6.2 *Recommended Follow-up Actions*

The panel identified several actions arising from the discussions. These were discussed by workshop participants and modified accordingly.

A significant amount of discussion related to whether the workshop should endorse the adoption of AS 1851 – 2005 and particularly the adoption of monthly testing of pump and sprinkler systems as allowed by the standard.

Participants agreed that reducing the frequency of testing was desirable, and most endorsed the in-principle adoption of monthly testing as permitted by AS 1851 – 2005. However, some participants advised that before monthly testing can be mandated technical evidence must be provided to show that it can still achieves an appropriate level of fire safety. Also a decision to adopt monthly testing into regulations must be made by the relevant governments.

As a result of these discussions the workshop agreed to recommend the following list of actions to FPA Australia and WSAA.

- A. To support in-principle the national adoption of the relevant water components (sprinkler and hydrant parts) of AS1851 – 2005, particularly the monthly testing of systems.

- B. To brief a consultant to prepare a study of the issues associated with moving from weekly to monthly testing of pumps and sprinklers that could be made available to all stakeholders, including governments and water authorities.
- C. Form a committee of participants from this forum (and relevant others) for the purposes of driving a coordinated and appropriate approach to achieve water conservation for the fire protection industry, and the driving of recommended actions from this forum. This committee would review the study proposed in B.
- D. Explore ways to encourage and support Australian Building Codes Boards (ABCB) and state regulators to adopt water efficiency targets for the fire protection industry.
- E. Support existing and new case studies to demonstrate the costs and other issues associated with achieving water savings in the fire protection industry.
- F. Prepare a package of information on sustainable water conservation and re-use options for building owners, regulators, designers (including education, licensing and accreditation programs).

Attachment 1: Participants

Participants	Representing
1. Peter Johnson	FPA Australia
2. Ross Hodge	FPA Australia
3. Roger Thomas	FPA Australia
4. Barry Lee	FPA Australia
5. Hans Zerno	FPA Australia
6. John Lambert	FPA Australia
7. Ross Young	WSAA
8. Claude Piccinin	WSAA
9. Stephen Kay	Sydney Water
10. Doug Cox	Sydney Water
11. Darryl Nish	South East Water
12. Brian Hollis	Insurance Council of Australia
13. Andre Mierzwa	Insurance Council of Australia
14. Brian Davies	National Fire Industry Association
15. Jeff Wood	National Fire Industry Association
16. Tasman Twyman	ABCB
17. Ray Loveridge	ANCB
18. Orjan Lundberg	Green Building Council of Australia
19. Naomi Brown	AFAC
20. Graeme Thom	AFAC
21. Mark Power	AFAC
22. Adam Dalrymple	AFAC
23. Chris Jurgeit	AFAC
24. David Michel	Standards
25. Glen Brumby	Building Codes Qld
26. Lance Glare	Building Codes Qld
27. Michael McGuinness	Building Codes Qld
28. Mary Andruchowycz	Planning SA
29. Stephen Durnford	Planning NSW
30. Alan Host	Planning NSW
31. Haydn Wood	Victorian Building Commission
32. Neil Jones	Facilitator

Attachment 2: Workshop Program

Monday 19th November (evening)

6:30 – 7:00	Registration and pre-dinner drinks	
7:00 – 9:30	Dinner \ Welcome	Peter Johnson (Pres FPAA) Ross Young (CEO WSAA)

Tuesday 20th November

8:30-8:45	Welcome & Overview of day	Ross Young (WSAA) and Peter Johnson (FPAA)
8:45-9:10	Open discussion on expectations of day	Facilitator
9:10-9:35	Scene setting – Fire protection industry	Roger Thomas (FPAA)
9:35-10:00	Scene setting – Water regulation & supply	Stephen Kay (Sydney Water)
10:45-10:25	Scene setting – Water regulation & supply	Graeme Thom (AFAC)
10:25-11:00	Morning Tea	
11:00-11:25	Scene Setting – Building regulations	Haydn Wood (Vic. Build. Comm.)
11:25-12:30	Concurrent Technical Workshops – To identify key issues & opportunities	
	a) Fire services	
	b) Maintenance and testing of sprinklers, pumpsets and hydrants	
	c) Fire system design, including sprinklers, hydrants, hose reels and pumps	
	d) Town mains water supply including pressure management & metering	
12:30-1:15	Lunch	
1:15-1:40	Reports and discussion from group a)	Facilitator
1:40-2:05	Reports and discussion from group b)	Facilitator
2:05-2:30	Reports and discussion from group c)	Facilitator
2:30-2:55	Reports and discussion from group d)	Facilitator
2:55-3:30	Afternoon Tea	
3.30-4:30	Application and implementation	Facilitator
	a) Fire services	
	b) Maintenance & testing	
	c) Fire systems designs	
	d) Town mains water supply	
4:30-5:00	Summary	
5:00-5:15	Where to from here	Ross Young (WSAA) and Peter Johnson (FPAA)

Attachment 3: Outcomes from Working Group and Subsequent Discussions

5.1 Group A: Fire Services

1. How can regulations (legislation) support water conservation & fire safety?	
State level:	
<ul style="list-style-type: none"> • Need for legislation or regulation of AS1851-2005 around Australia • Need for enforcement • Need for linking regulations between supply authorities and users (e.g. fire brigades) • Need for refinement of legislation to reflect possible operational changes with less water • Need to use strong influence to effect legislative changes through AFAC and State Fire Services 	
2. How can we incentivise stakeholders to adopt water conservation & fire safety measures?	
<ul style="list-style-type: none"> • Via education programs, case studies & communication strategies which demonstrate benefits • Consider financial/tax/depreciation (from governments for water authorities and not fire services) • Use of metering • Benefits from "Green Star" • Introduce AS1851-2005 and free inspections (less false alarms & costs) 	
3. Who are the stakeholders (in water conservation & fire safety) and what is at stake for them?	
Stakeholders	What's at Stake
<ul style="list-style-type: none"> • Certifiers • Fire fighters • Community/Politicians • Insurers • Occupants • Property owners • Fire protection companies • Water supply/network & authorities • Other utilities • Unions • Regulators including EPA 	<ul style="list-style-type: none"> • Reputation, change, cost, responsibility • Reputation, life safety, community expectations • Sustainability (life safety, property, business continuity & environment) • Losses, cost (change in risks) • Life safety • Loss, cost, liability, reputation • Money, reputation, system integrity • Money, liability, responsibility, community expectations • As above • OH&S • Coordinated response – responsibility and liability

4. What technical options (for water conservation & fire safety) are possible and what are their likely costs?	
Options	Likely Impacts
<ul style="list-style-type: none"> • More sprinklers especially for residential use • New technologies • Water additives • Recycled 'A' class water (for trucks and mains) • Recapture water & firewater runoff 	<ul style="list-style-type: none"> • Make water go further • Make water go further • Predict costs from case studies • Treated water • Saving water from testing
5. Why use water? What else could we use?	
<p>Why Use Water?</p> <ul style="list-style-type: none"> • It is free • It is efficient • It is available • It is safe (OH&S) • It is reliable • It can be used with all classes of hazards 	<p>We need to use water, so what could make it go further?</p> <ul style="list-style-type: none"> • Use of compressed air foam • Use of water mists • Mix it with other ingredients to be more efficient • Reduce oxygen environments • Bring back halons!!

5.2 Group B: Maintenance & Testing

1. How can regulations (legislation) support water conservation & fire safety?	
<ul style="list-style-type: none"> • Legislation sets minimum standards and removes sub-standard practices • Need for uniform national legislation • Set targets for reducing water use and using recycled water for testing fire protection systems (FPT) • When buildings are sold, a water efficiency declaration could be made mandatory at the time of sale 	
2. How can we incentivise stakeholders to adopt water conservation & fire safety measures?	
<ul style="list-style-type: none"> • Metering and charge for water used in testing FPTs • Education of property owners • Offer insurance incentives • Prevent regulation and community outrage • Have conditions attached to the supply of water 	
3. Who are the stakeholders (in water conservation & fire safety) and what is at stake for them?	
Stakeholders	What's at Stake
<ul style="list-style-type: none"> • Community are a key stakeholder • Building owners • Building occupants • Water utilities • Fire services • Government (State and Local) • Insurance companies • Fire protection industry 	<ul style="list-style-type: none"> • Life safety & water safety • Risk management, life safety • Life safety • Water security • Life safety for operators • Set public policy (State Administration (Local) • Risk management and financial loss • Suppliers /contractors, etc

4. What technical options (for water conservation & fire safety) are possible and what are their likely costs?
<ul style="list-style-type: none"> • Can we adopt the practice of fire testing water which is being used to flush toilets in Queensland • Lower pressure requirements in NSW – can this be adopted across Australia? - Need research on this topic • Continued cooperation between all parties to ensure optimum outcomes • Every building could have its own pump and tank or supply from mains • Need to evaluate costs, etc and determine who pays • Consider on site collection of stormwater and reuse (non technical)

5.3 Group C: Fire System Design

1. How can regulations (legislation) support water conservation & fire safety?	
<p>National Solution:</p> <ul style="list-style-type: none"> • National legislation for water conservation similar to energy • COAG leading to ABCB – Building Min Council • ASs must fully support conservation while not compromising safety • Better regulation of water supply • Pressure <p>Interim Solution:</p> <ul style="list-style-type: none"> • Victoria practices • Queensland – new code for fire safety design • Package water supply and conservation in overall change effort 	
2. How can we incentivise stakeholders to adopt water conservation & fire safety measures?	
<ul style="list-style-type: none"> • Media pressure • Identify the true cost of water • Use star rating system • Obtain legal mandate • Political pressure • Charge costs to fire safety users • Cost effective technologies • Effective communications 	
3. Who are the stakeholders (in water conservation & fire safety) and what is at stake for them?	
Stakeholders	What's at Stake
<ul style="list-style-type: none"> • Property owners • Insurance companies (ICA) • Installation contractors • Fire safety engineers /architects • ABCB, Councils, State Govts, fire brigades • Water authorities • Industry associations and unions • Community • Australian Standards • Product manufacturers • Facility managers 	<ul style="list-style-type: none"> • Image/reputation • Money & risks • Cost – design costs, insurance • Risk – safety, property • Environmental impact – water saving, fire impact

4. What technical options (for water conservation & fire safety) are possible and what are their likely costs?

Options

- Use of salt water
- Non-drinking water options
- Zoned systems – sprinklers
- Tanks
- On-site self sufficiency
- Russell Testing Apparatus – inspector test connections (i.e. circulating test water to tanks)
- Variable pumps
- Mist systems
- Clean gas agents – special protection systems
- No water is not an option
- Reduce fuel or oxygen versus heat

5.4 Group D: Water Supply & Pressure Management

1. How can regulations (legislation) support water conservation & fire safety?

- Regulation is essential to provide targets/drivers for change and eliminate poor practice/worst practice, making best practice as the key driver
- COAG process requires demonstration that regulation is necessary (as a last resort) – needs impact assessment
- Consistency across states
- Case studies to demonstrate need
- Water supply legislation that provides realistic (defined) water performance levels
- Legislate for provision of FFW
- Match between fire and water legislation or recognize the mismatch
- Streamline processes to adopt conservation measures

2. How can we incentivise stakeholders to adopt water conservation & fire safety measures?

- Need clear pathway via:
 - green building council (ratings)
 - environmental credits
- Conditions of connection require conservation measures
- Interactions with taxation system
- Cost offsets via development system
- Cost transfer from supply to consumer (is funding available?)
- Continue to meet statutory and common law obligations

3. Who are the stakeholders (in water conservation & fire safety) and what is at stake for them?	
Stakeholders	What's at Stake
<ul style="list-style-type: none"> • Community – manage expectations – fire and non-fire • Property owners • Service providers • Regulators/Governments • Water supply authorities • Designers/Consultants/Certifiers • Insurers • Fire Services • Unions 	<ul style="list-style-type: none"> • Risks increased; costs increased, certainty reduced • Increased risk, cost/loss of business, especially water users • Shoot the messenger mentality • Business opportunity/more responsibility • Community backlash (voters) • Increased cost • Lack of uniformity (intra and inter state) • Significant cost • Community backlash • More emphasis on strategic planning • More work/responsibility • Shoot the messenger • Upgrade of skill sets and technology • Increased, risk, costs • In a soft market it is hard to increase premiums, loss of business • Increased life safety risk (uncertainty) • Increased cost (hardware & resources) • Skills updating (game has changed) • Skills/training/licencing • Cultural changes
4. What technical options (for water conservation & fire safety) are possible and what are their likely costs?	
<ul style="list-style-type: none"> • Water mist and C.A.F.S <ul style="list-style-type: none"> - complexity increased - tolerance (appliance specific) decreased - maintenance effort increased • Capacity to “section shop” AS 1851 - 2005 (but not “cherry pick” within) sections • Domestic (home) sprinklers – new and retrofit cost incentives • Design to pressure managed data (still flow restricted) <ul style="list-style-type: none"> - codes and standards must reflect this • Alternative water supplies & re-use water 	
5. Why use water? What else could we use?	
Why Use Water?	What else?
<ul style="list-style-type: none"> • It is cheap – falls out of the sky (sometimes) • It is very effective • The system is geared up for it – the alternatives would require significant infrastructure changes • There is low environmental impact in its release 	<ul style="list-style-type: none"> • Alternatives need to include allowance for costs & environmental impact