




Dangerous Chemicals Situations Must be Avoided

- The decline in chemicals management knowledge about Dangerous Chemicals is putting workers, the community and the environment at risk
- Preventable incidents are occurring in chemical businesses, chemical facilities, recycling centres, and warehouses: during transport, storage, handling & disposal of chemicals
- Only the Major Hazard Facility Regulations actually require chemical management knowledge to be demonstrated to be in place
- Australia needs to:**
 - Hold ALL businesses responsible for operating safely
 - Provide the necessary education and resources for Senior Managers & for a new Dangerous Chemicals Safety Advisor role to be set up.

Jeff Simpson, Chemical Management & Regulations Consultant
Haztech Environmental (Publishes "Hazmat & Environment Notes")
Jeff.Simpson@haztech.com.au mobile: 0403-072-092

For Acronyms: see "Appendix - Acronyms Used" 27 July 2024

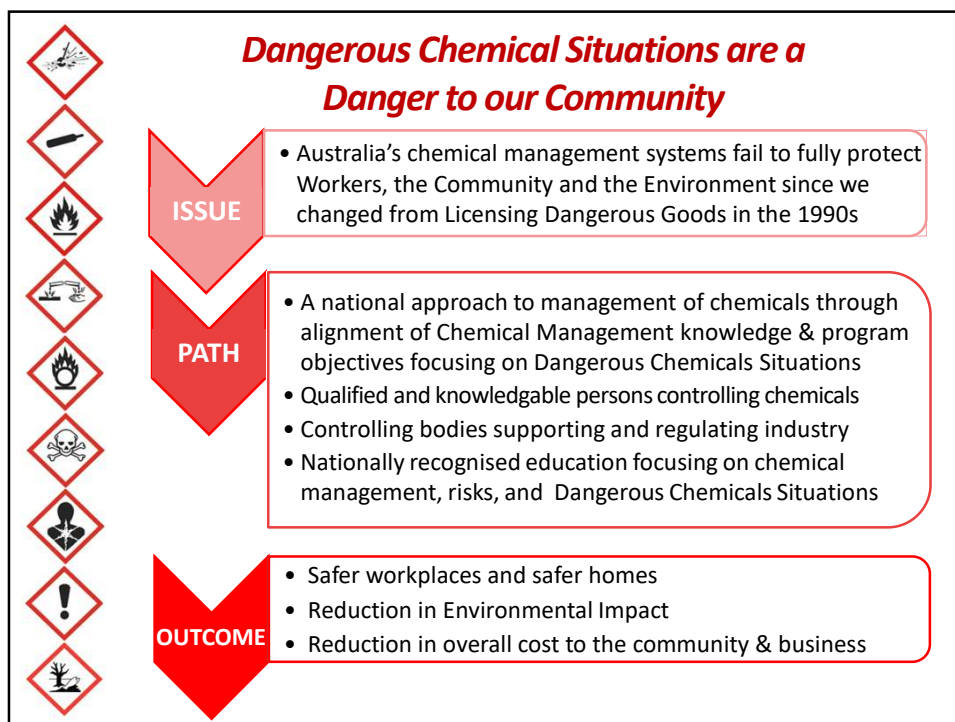
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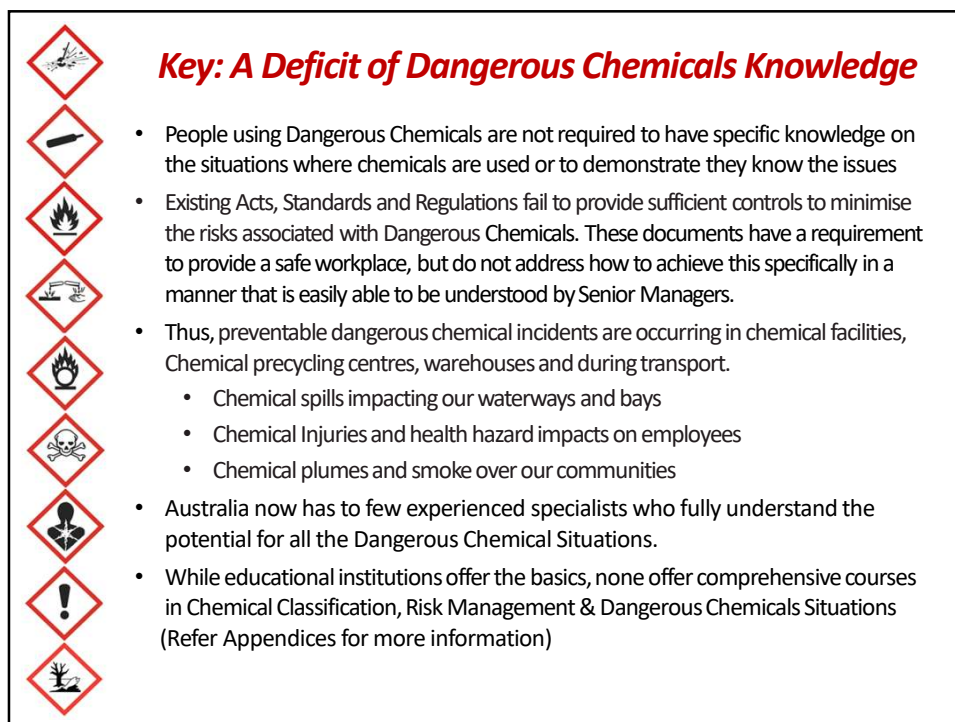
Dangerous Chemicals Situations must be Avoided – Initial Comments

- My name is Jeff Simpson. I work in the area of chemical management & have written the industry newsletter "Hazmat & Environment Notes" since 1985. I have worked as a specialist sole trader in the area of supporting businesses to meet chemical regulations since 1991, and I also continue to prepare Safety Data Sheets for pure chemicals and product formulations for businesses.
- I want to alert you to a major problem in Australia and in most of the world (except in the EU), that exists because of poor chemical management.
- Dangerous Chemical Situations, that lead to Dangerous Chemical incidents, are not understood by many Senior Managers in businesses and now in Authorities, due their backgrounds. (Except under our Major Hazard Facility Regulations.)
- This means we just keep waiting for the next Dangerous Chemical Situation, that then causes a dangerous chemical incident management problem.
- Australia needs to:** Hold ALL businesses fully responsible for operating safely.
- Australia needs to:** Provide the necessary education and resources for Senior Managers and for a new Dangerous Chemicals Safety Advisor role to be setup.


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Causes of the Deficit in Dangerous Chemicals Mgmt

- Acts, Regulations and Standards are now often drafted without sufficient input from experienced chemicals management specialists, simply due to lack of such specialists.
- This lack of in-depth input may lead to Dangerous Chemicals management gaps
- There were three University courses prior to 2010, dealing with chemical hazards & chemical management. Now there are none.
- Because there are no comprehensive courses, now businesses self regulate & provide training internally or on the job. This can create problems where the so-called “responsible” person in business does not know nor understand the chemical dangers
- Such As: our existing abilities to train employees, is limited by our own experience in the Dangerous Chemicals Management
- Because of our limited experience, this may lead to overlooking potential chemical hazards and potential Dangerous Chemical Situations.

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Implications are Dangerous Situations & Incidents

- Incidents have resulted from not requiring people responsible for chemicals management to be qualified and to maintain their own and their business’s knowledge, on a regular basis.

Typical Dangerous Situations & Incidents that have occurred:

- 1/ Whilst drilling into “empty” fuel / solvent tanks, there have been ignitions which cause fires, where Workers have suffered burn injuries & some die.
- 2/ 200 & 1000 litre containers that leak, with inadequate spill containment, near ignition sources, with inadequate or no fire protection, can also catch fire.
- 3/ During flammable liquid transfers with no grounding & bonding 2 workers died in Melbourne in late 2023. There was a major chemical fire in mid July 2024.
- 4/ Hazardous atmospheres inside Shipping Containers; & cleaning with solvents in Confined Spaces, potentially leads to illness or death. Fix: Fully airing out.
- 5/ Hazardous chemicals released during curing without good ventilation. e.g. Silicone Resins with 2-Butanone Oxime release (a cancer inhalation hazard). Such Silicone Sealants are banned for domestic use in the EU .
- 6/ Lithium Battery charging of low quality e-scooters causing dangerous electrical discharging with high heat, and then serious fires or explosions. This is now a major cause of house fires across Australia.
- 7/ Working with Engineered Stone is now banned. Many will die from Silicosis.

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The Starting Solution is Knowledge and Training

- A national approach to the management of chemicals through alignment of Dangerous Chemicals Situations knowledge & training program objectives
- Regulation to require people handling Dangerous Chemicals to be qualified and demonstrate continuing current knowledge (e.g. 3 yearly)
- Setup tertiary education courses for Senior Managers and Dangerous Chemicals Safety Advisors (DCSAs)

Management needs: Short course covering statutory requirements, chemical risks, dangerous situations, and control mechanisms

DCSAs need: TAFE level or University level subjects
- Add elements into undergraduate Science, Engineering & Mgmt degrees to give all people managing chemicals the basics of Dangerous Chemicals Situations
- Develop short courses and encourage relevant employees to engage in the same way we require for other areas of Quality, Health & Safety.
- Engage Universities who were previously active in this Chemical Management knowledge space to recover archived course information
- Re-activate retired experienced tertiary education specialists, with the scope & depth of Chemical Management knowledge that is needed to setup tertiary courses to include Dangerous Chemicals Situations


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The Final Aim is for Industry to Know the Issues

- Technical, Professional and Industry Associations need to create, maintain and share bodies of chemical management knowledge covering Dangerous Chemicals Situations and disseminate this through relevant Federal, State & Territory Authorities with responsibility for relevant Regulations and associated Guidance
 - Industry, Technical & Professional Associations need to share the full range of Dangerous Chemicals Situations with their members and the public
 - Federal, State, Territory Authorities, (such as Safe Work, EPAs, Health & Agriculture) need to link with associations to educate inspectors & managers
 - Authorities must also be positioned to better inform Associations, Businesses, Media, Unions & the public when chemical issues arise, investigated, resolved
 - Emergency Response Organisations will be better equipped to respond to Dangerous Incidents when they have formal mechanisms to share with industry. E.g. A national Dangerous Chemicals Incidents website.
 - The Media to be equipped to report on emerging Dangerous Chemicals issues
 - Education & Industry Training Providers could utilise this knowledge to maximise course relevance for future Dangerous Chemicals Safety Advisers
 - The increased spread of knowledge and number of competent Dangerous Chemicals specialists would better protect the public & workers from incidents

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Outcome: A Dangerous Chemicals Safety Advisor role

- To ensure industry has the knowledge to mitigate Dangerous Chemicals risks
- In the EU Dangerous Goods Safety Advisors are a key Management role
- The EU International Carriage of Dangerous Goods by Road Agreement (ADR) requires businesses responsible for consigning or the carriage of Dangerous Goods by Road to appoint Dangerous Goods Safety Advisors (DGSA) to minimize risks to persons, property and the environment.
- Australia needs to Expand** on the EU DGSA role for all businesses handling Dangerous Chemicals that can cause Dangerous Chemicals Situations.
Create a Dangerous Chemical Safety Advisor (DCSA) role.
- DCSAs would be required to maintain and build their knowledge and contribute to developing systems at their site including:
 1. Chemical Safety Assessment program utilising Risk Management
 2. Training and information dissemination to ensure all persons potentially exposed are aware of the Chemical Risks, Dangerous Situations and Controls
 3. Reporting System to ensure incidents are reported both internally and within the wider industry to help with continual improvement
 4. A management system to ensure records are maintained and accessible to all stakeholders in every chemical business
- Post graduate elective units in Dangerous Chemicals Management to ensure all Senior Managers understand the obligations and need for working with a DCSA

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Conclusion


- “The Australian Community needs Dangerous Chemicals Safety Advisors and Senior Managers in Industry & in Authorities who **must know** about their potential Dangerous Chemical Situations” so they can safely manage them.
- We all need to Share this Need for Change Outcome with:
 1. Federal, State & Territory Authorities and Politicians
 2. Emergency Response Organisations
 3. Industry; Technical, Professional & Community Associations; & Unions
 4. Universities & TAFEs
 5. Industry Training Providers (particularly for Senior Managers)
 6. The Media (such as the News Information, TV & Radio News, Current Affairs, and on Internet Forums)

Prepared by:
 Jeff Simpson
 Chemical Management & Regulations Consultant
 Haztech Environmental (Publishes “Hazmat & Environment Notes”)
 18 Laurel St, Ashburton Victoria 3147
Jeff.Simpson@haztech.com.au mobile: 0403-072-092

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With support from an industry colleague, particularly to have the separate Appendices

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Appendices:

Dangerous Chemicals Situations Must be Avoided

- Acronyms Used
- Previous Communication about Dangerous Situations
- Existing Management Systems
- Existing Training and Forums
- Solution: Industry Competence
- Chemical Incident Examples #1
- Chemical Incident Examples #2
- Chemical Incident Examples #3

Prepared by:
 Jeff Simpson, Chemical Management & Regulations Consultant
 Haztech Environmental (Publishes "Hazmat & Environment Notes")
 18 Laurel St, Ashburton Victoria 3147
Jeff.Simpson@haztech.com.au mobile: 0403-072-092 27 July 2024
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Appendix - Acronyms Used

AICIS – Australian Industrial Chemicals Introduction Scheme
 AIDGC – Australasian Institute of Dangerous Goods Consultants
 AIHS - Australian Institute of Health & Safety
 APVMA – Australian Pesticides & Veterinary Medicines Authority
 CHCN – Chemical Hazard Communication Network
 DC – Dangerous Chemicals DCSA - Dangerous Chemicals Safety Advisor
 DCCEEW - Dept of Climate Change, Energy, Environment & Water
 DG – Dangerous Goods DGSA - Dangerous Goods Safety Advisor
 DGAG – Dangerous Goods Advisory Group
 DMIRS – WA Dept of Mines, Industry Regulation and Safety
 ECHA – European Chemicals Agency
 EPA – Environment Protection Authority
 FSANZ – Foods Standards Australia & New Zealand
 Haz – Hazardous Chemical & Non Haz – Non Hazardous Chemical
 IMDG – International Maritime Dangerous Goods
 MHF – Major Hazard Facility
 SDS – Safety Data Sheets (for chemicals & chemical products)
 TGA – Therapeutic Goods Administration
 UNITAR – UN Institute for Training & Research

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Previous Communication about Dangerous Situations

Email sent to Politicians, Authorities, Associations, etc on 31 July 2023:

A requirement under legislation is for all of us to protect the Australian Community, Workers and the Environment from Chemicals. To achieve this, Australia needs Qualified and Competent Chemical Management Specialists and Managers. However, a major issue that we are facing in Industry and within our Authorities, is an extreme shortage of people with the appropriate technical knowledge in respect to chemical management under existing legislation to meet these requirements.

One of the consequences of this shortfall of experienced persons are incidents due to poor Chemical Management practices. It is not until we become involved in an incident that we realise what the consequences can be when “things go wrong”. Sometimes, these can have a drastic impact on the individual, the Company, the Authorities, the community, and the environment.

One of the reasons for this shortfall, is that there are now very few experienced tertiary education specialists with the scope and depth of Chemical Management knowledge that is needed in Australia! Simplistically, we are now expected to self-train, or learn on the job, in the specialist area of Chemical Management.

We need to change the relevant Regulations so that Chemical Management knowledge for Senior Managers and Specialists is required to be maintained and updated on a regular basis (similar to what is required over 3 years for other Specialists like Chartered Accountants, & Tax Agents).

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Appendix - Existing Chemical Management Systems

Chemical Management Regulations in Australia for Industrial, Agricultural & Domestic Use Chemicals – Federal, State & International

Australian Federal Regulations cover (for example):

- Industrial (& Cosmetic) Chemicals (AICIS)
- Agricultural Chemicals & Pesticides (APVMA)
- Domestic Use Chemicals (e.g. Poisons via TGA) Food Chemicals (FSANZ)
- GHS Hazardous Chemicals & MHFs (by Safe Work Australia)
- Dangerous Goods (Transport) (by National Transport Comm.)
- Environmental Management Standards (by DCCEEW)

State & Territory Regulations cover:

- Implementation of Australian Regulations with local Variations
- e.g. State EPA's legislate on chemical wastes & categorisation

International Regulations cover:

- Dangerous Goods Transport by Sea & Air
- Chemical Emissions / Chemical Waste Disposal


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Appendix - Existing Training & Forum Networks

- **WA DMIRS:** Assessment of Dangerous Goods Consultants
- **IMDG Code Mandatory Training** (which does not train in classification)
- **Writing SDSs & Labels for Chemicals** courses.
- **Workshops on Hazardous Area Locations & Explosive Areas Training:**
- **ICHEME Training:** icheme.org/career/training/online-courses/
- **UNITAR Online Courses (for Chemicals)** <https://unitar.org/>
- **Dangerous Goods Safety Adviser Courses** in the EU.
- e.g. Overseas: ECHA (in the EU) holds Chemical Conferences with Podcasts
- Subscribe to website information updates for **every** Govt / Authority / Association / Standard
- Industry / Technical / Professional Associations such as Chemistry Australia; Accord; AIDGC; AIHS; AIOH; ACTRA; RACI; ACLCA; ALGA.
- AIDGC (focusses on Dangerous Goods Management)
- Hazmat & Environment Notes (5 issues / year for AU & NZ) www.haztech.com.au/hazmat-environment-notes-newsletter/overview/
- Chemical Management Networking Groups: e.g. DGAG, CHCN

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Appendix - Solution: Industry Knowing the Issues

- Qualified Dangerous Chemicals Safety Advisors need to maintain their Dangerous Chemicals Situations knowledge through additional training & participation in industry forums each year
- e.g. In Australia:

AIOH (for Occupational Hygienists)
ACTRA (for Toxicologists) RACI (for Chemists)
- ACLCA (Aust. Contaminated Land Consultants Association)
- ALGA (Australasian Land & Groundwater Association)
- AIHS (Body of Chemical Management Knowledge)
- Engineers
- DGAG / CHCN
- AIDGC
- All General Managers managing chemicals to require formal education, but also need key Regulatory Management Issues subjects (such as for Chemical Management & Disposal) for their business areas where a comprehensive range of Dangerous Chemicals Situations are covered.

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Appendix - Chemical Incident Examples # 1

From WorkSafe Victoria Prosecution Result Summaries
www.worksafe.vic.gov.au/prosecution-result-summaries-enforceable-undertakings

- Drums pierced by forklift tynes and releasing flammable and/or toxic and/or corrosive liquids), & then the situation causes chemical exposures and Dangerous Chemicals Situations for employees.
- Apprentices were instructed to drill holes into the fuel tank of a vehicle in order to drain it in preparation for removal of the tank ('task'). He then left the apprentices unsupervised at the workplace. The apprentices performed the task. Whilst drilling into the tank, there was an ignition which caused a fire. The two apprentices suffered burn injuries.
- Deficiencies in the storage – e.g. IBCs stacked high without purpose built racking, IBCs that were leaking, inadequate spill containment, ignition sources, & inadequate or no fire protection. An employee was aware of the risk of fire when handling Dangerous Goods but was not aware that static could cause fire, and was never taught to earth containers before filling them.









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Appendix - Chemical Incident Examples # 2

- Gas cylinder bottles were loaded onto and transported in a vehicle that was not suitable. The risk of explosion posed a significant risk to the safety of persons collecting gas cylinder bottles, and those in the vicinity of the vehicle
- A reactor produced and released Calcium Dodecyl Benzene Sulphonate (CaDDBS), a hazardous, non-dangerous (goods) substance. CaDDBS is a combustible liquid that causes skin irritation and serious eye damage, is harmful if inhaled and may cause respiratory irritation.
- Incidents of non compliance with EPA Vic Regulations for Chemical Waste reporting and disposal not followed by chemical industry General Managers

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Appendix - Chemical Incident Examples # 3	
	<ul style="list-style-type: none"> Working with Engineered Stone in building kitchens where the sole trader contractor has been responsible for training, and appropriate procedures to avoid Silicosis. Now Banned instead of Managed.
	
	<ul style="list-style-type: none"> Cleaning with solvents in areas such as tanks, refrigerators or rooms which could be considered confined spaces.
	<ul style="list-style-type: none"> Flammable aerosol sprays used near ignition sources.
	<ul style="list-style-type: none"> Cutting & welding drums / tanks, with flammable residues. Slow release of flammable vapours in part empty drums & tanks that have only a flash hazard.
	<ul style="list-style-type: none"> Aluminium Phosphide fumigant tablets that react with moisture to release toxic Phosphine fumigation gas so Freight Containers need airing.
	<ul style="list-style-type: none"> Electrical equipment in hazardous areas with flammable vapours/gases or combustible dusts have an explosion risk.
	<ul style="list-style-type: none"> Hazardous atmospheres inside Shipping Containers & Cool Stores.
