

**SRACA VICTORIA July 2019**

**Meeting Theme: Developing a risk based quality management system for water used in the reprocessing of RMD's**

**Presentation by:**

**Dr. Julian Catmull (EnviroCheck Australia Pty Ltd)**

**Presentation Title:**

**INFECTION CONTROL IN CSSDs**

*Requires a*

**WATER QUALITY RISK MANAGEMENT PLAN**

# **ENVIROCHECK AUSTRALIA PTY LTD**

## **SPECILISING IN WATER QUALITY**

**FIT FOR PURPOSE LABORATORY ANALYSIS**

**WATER INDUSTRY TRAINING (RTO #32350)**

**WATER QUALITY RISK MANAGEMENT PLANS (WQRMPS)**

**TRIGGER ACTION RESPONSE PLANS (TARPs)**

**A TRUE CONSOLIDATION OF EXPERTISE**

Presented by Dr. Julian Catmull

# Central Sterile Supply Dept. (CSSD)



# Introduction

## **CSSD Mission**

- Timely delivery of sterile goods
- Quality according to recognised standards
- Efficiency

## **Water is Central to CSSD Activities**

- Cleaning
- Disinfection of medical devices including RMDs
- Sterilisation of critical items (high risk for infection)
- Supply of sterile materials

# Introduction

## **CSSDs**

Are often referred to as the heart of Healthcare

Therefore

## **WATER**

Is the Life Blood

While

## **Authorities and Standards**

Bring a rhythm (**AEDs** ?) for consistency and control to the CSSD  
through defined QCs / e.g. ASNZS 4187 for water

Then We Have

## **Governance, Legislation, Policies & Regulation**

To drive compliance

# Introduction

In view of the **CSSDs** critical role in Health Services  
**for infection control**

**Quality management of services is extremely important**

**The potential consequences of a poor water quality  
undermining CSSDs services may be catastrophic to  
patient outcomes**

**Identification of the water quality risks  
and to minimise the likelihood of adverse  
outcomes is the aim of a  
Water Quality Risk Management Plan  
(WQRMP)**

# Some Confusion?

Australia has 9 depts. of Health

Some States have Legislation and others have  
health Policy Directives:

Regardless

All of us must strive for compliance in  
water quality by **Managing the Risks**

# WATER QUALITY RISK MANAGEMENT PLAN (WQRMP)

## **What is risk management?**

**Risk management is the**

1. Identification of the risks or hazards
2. Evaluation of the risks
3. Prioritization of risks
4. Control of the risks or risk mitigation

# WATER QUALITY RISK MANAGEMENT PLAN (WQRMP)

## **Elements of Risk Mitigation?**

1. Control to minimise the probability or likelihood of an event stemming from an identified risk
2. Ensure coordinated & economical application of resources & controls
- 3. Monitoring of controls**
4. Measure and controlled responses to diminished outcomes
5. Continuous improvement through realization of opportunities.

# Our Perception of Risk Has Changed: Educate and Assessment Processes

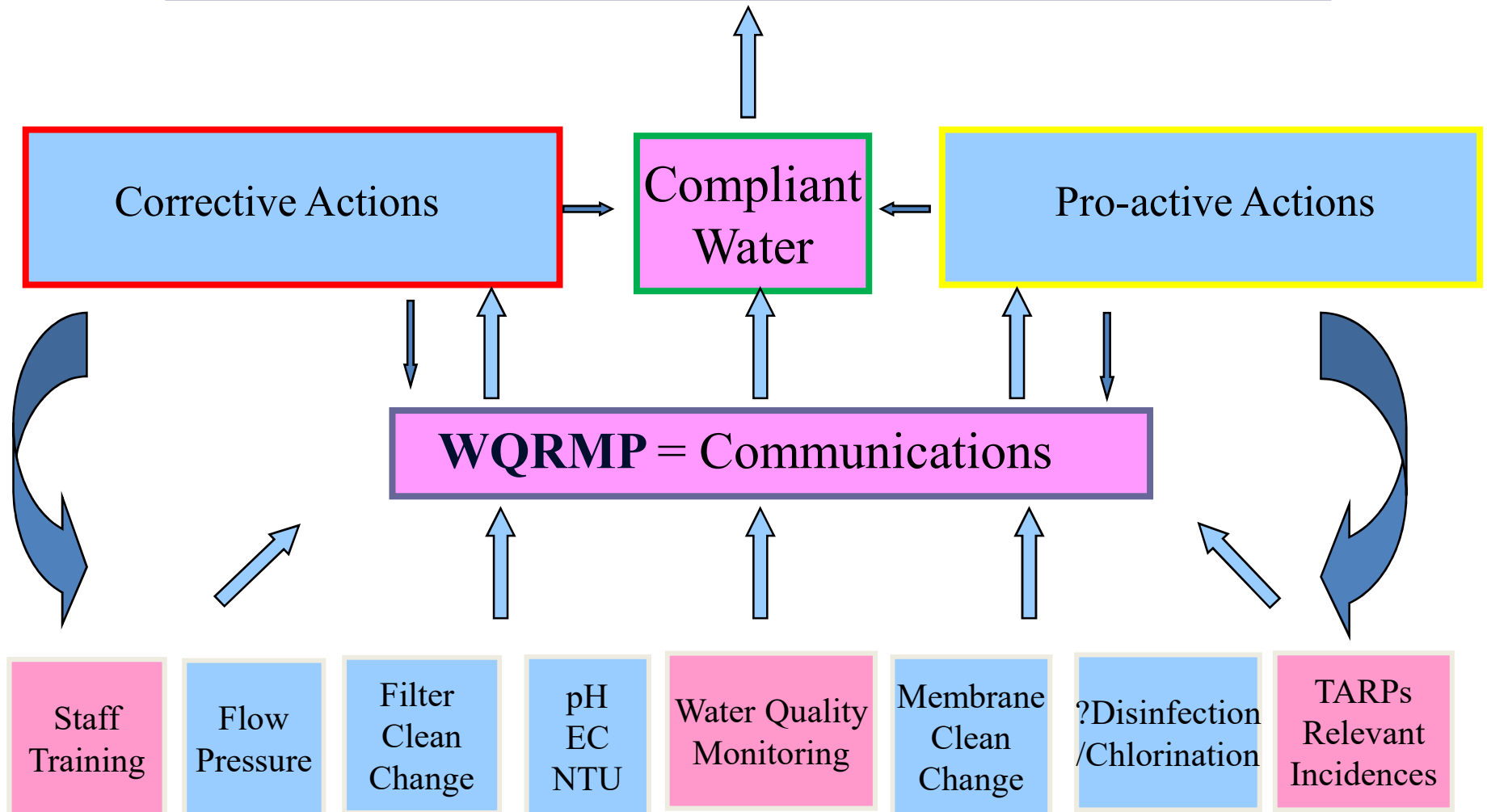
Our **perception** determines our **behaviour** towards any situation.

1. Risk management today is to educate and provide assessment systems **as opposed to opinions**
  2. Familiarity breeds complacency
  3. Short term rewards increases risk behaviour
- **profit, convenience, comfort**



# WATER QUALITY RISK MANAGEMENT

**GOAL – Water Quality - Fit for Purpose**  
Helping to Ensure Infection Control via CSSD



# WATER QUALITY RISK MANAGEMENT PLAN (WQRMP)

## **A WQRMP IS A VITAL COMMUNICATION TOOL:**

1. It is a centre point of reference for all stakeholders
2. It requires a water management TEAM
3. It describes facilities, Standards, risk assessments, evaluations, prioritisations and controls
4. It describes procedures, schedules and methodologies
5. It defines monitoring schedules, data, interpretations
6. It defines the chain of command
7. It defines Trigger Action Response Plans (TARPs) for measured and controlled responses to diminished outcomes
8. It encourages continuous improvement through realization of opportunities.

**There are many other components and detail to this QA/QC document**

# RISK MANAGEMENT: A SIMPLIFIED PROCESS

## The Key Steps in Risk Management:

1. Identify hazards
2. Assess risks that may result because of the hazards
3. Decide on control measures to prevent or minimise the level of the risks
4. Implement control measures
5. Monitor and review the effectiveness of measures



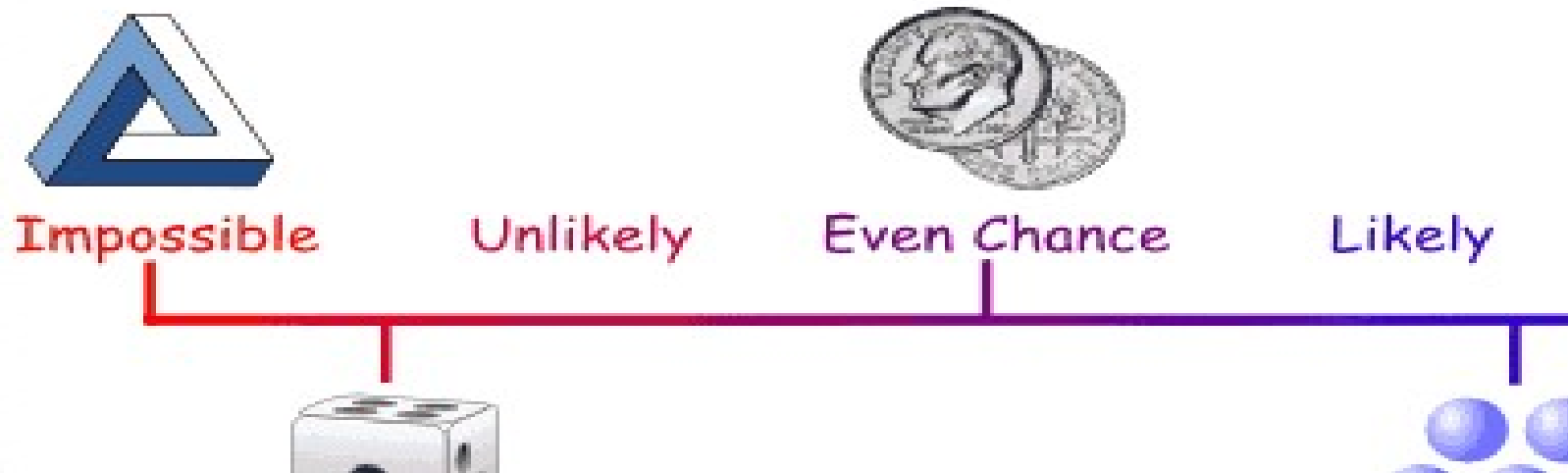
# EVALUATION AND PRIORITISATION: THE RISK ASSESSMENT TOOLS

**Risk is assessed by looking at two factors:**

- **Likelihood** – How likely is it that the event would happen?
- **Consequence** – What is the most realistic outcome if the event occurred?

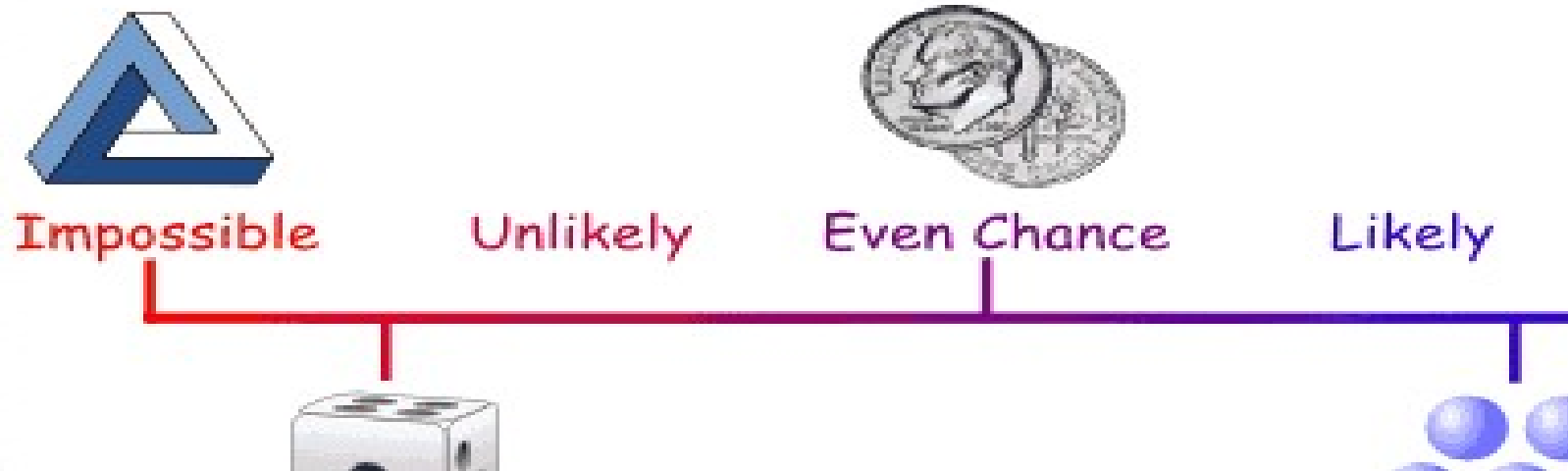
# LIKELIHOOD

Likelihood is the probability of an event occurring in the future



# LIKELIHOOD

Likelihood is the probability of an event occurring in the future



# RISK MANAGEMENT MATRIX

## DEFINITION: LIKELIHOOD SCALE

| Likelihood |                |  |                |
|------------|----------------|--|----------------|
| Category   |                | Definition   |                |
| A          | Almost Certain | Several times a year<br>(95% probability the risk event will occur)  | Almost Certain |
| B          | Likely         | In the next 12 months<br>(75% probability the risk event will occur) | Likely         |
| C          | Possible       | Every 1-2 years<br>(50% probability the risk event will occur)       | Possible       |
| D          | Unlikely       | Every 2-5 years<br>(20% probability the risk event will occur)       | Unlikely       |
| E          | Rare           | Every 5-20 years<br>(5% probability the risk event will occur)       | Rare           |

# LIKELIHOOD IS DEPENDENT ON OUR ACTIONS/INACTIONS

While we are free to choose  
our **ACTIONS**,  
we are not free to choose  
**CONSEQUENCES**

# Likelihood - Consequence



# Consequence (Effect) Definition

1. A result or an effect of an action or inaction
2. Usually an unwanted or unwelcome outcome
3. Predictable consequences are the most credible/likely outcome of a hazard scenario

4. Karma



# RISK MANAGEMENT MATRIX

## DEFINITION: CONSEQUENCE SCALE

| Consequence |               |  |  |
|-------------|---------------|--|--|
| Category    |               | Health and Safety  | Environmental  |
| 5           | Catastrophic  | Single or multiple fatalities                            | Severe damage to the environment. Impact affecting wide area for more than 10 years                      |
| 4           | Major         | Serious injury to an individual or a dangerous near miss | Major damage to environment. Impact affecting a wide area for 1 year - 10 years                          |
| 3           | Moderate      | Sustained lost time due to injury sustained at work      | Moderate damage to the environment. Damage contained to a small area. Area affected for 1 month - 1 year |
| 2           | Minor         | Lost time due to injury sustained at work                | Minor damage to the environment. Damage contained within a site. Area affected for less than 1 month.    |
| 1           | Insignificant | Minor injury requiring off-site medical attention        | Isolated damage to the environment, confined to a small area   |

# A RISK MANAGEMENT MATRIX

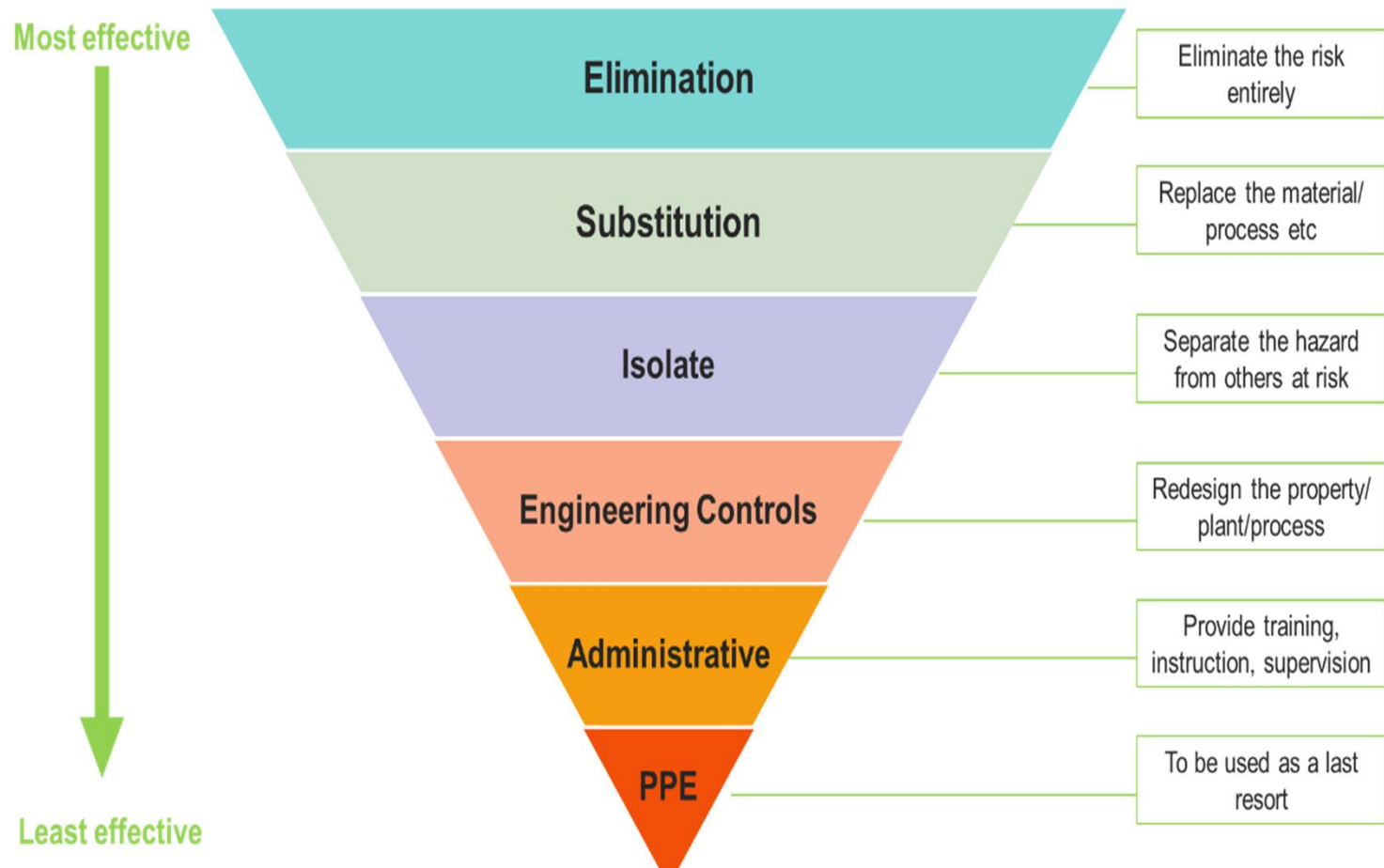
## DEFINITION: RISK RANKING

Risk Matrix (Likelihood x Consequence = Risk)

|   | 1 -Insignificant | 2 - Minor        | 3 - Moderate     | 4 - Major        | 5 - Catastrophic |
|---|------------------|------------------|------------------|------------------|------------------|
| A | Low (A1)         | Significant (A2) | High (A3)        | High (A4)        | High (A5)        |
| B | Low (B1)         | Medium (B2)      | Significant (B3) | High (B4)        | High (B5)        |
| C | Low (C1)         | Low (C2)         | Medium (C3)      | Significant (C4) | High (C5)        |
| D | Low (D1)         | Low (D2)         | Low (D3)         | Medium (D4)      | Significant (D5) |
| E | Low (E1)         | Low (E2)         | Low (E3)         | Low (E4)         | Medium (E5)      |

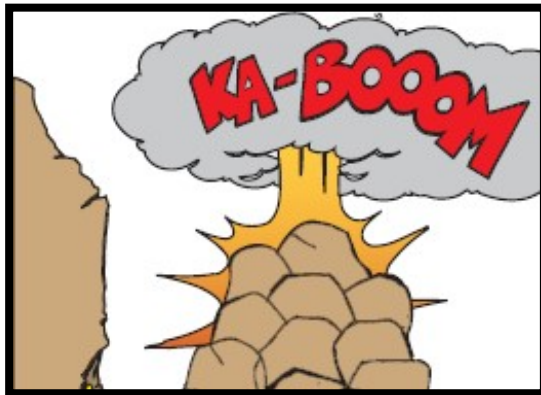
# Mitigation via a Hierarchy of Controls

When considering controls, preference must be given to the highest order of risk control measures, in accordance with the hierarchy of controls below.

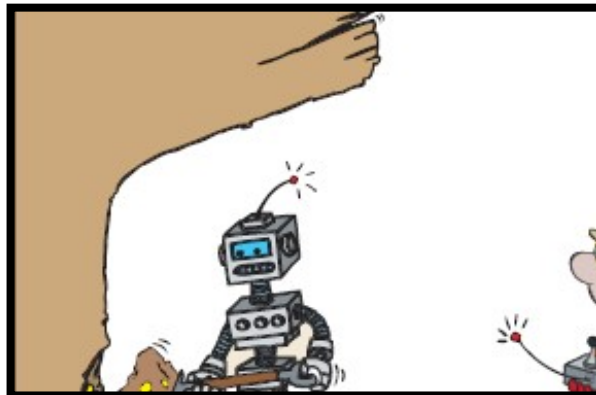


# LIKELIHOOD – THE HIERARCHY OF CONTROLS

## Practical Application



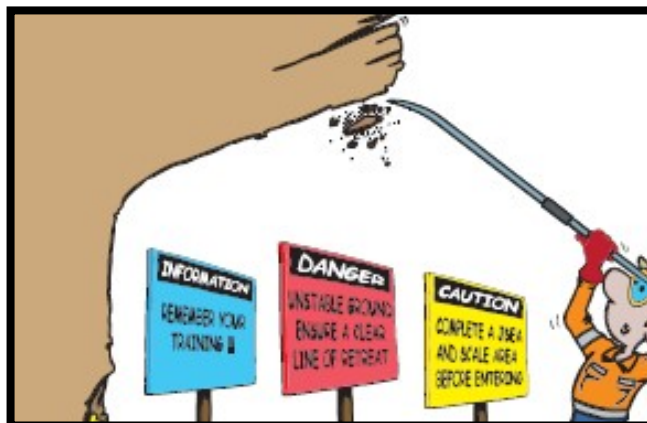
1. Elimination



2. Substitution



3. Engineering



4. Administrative



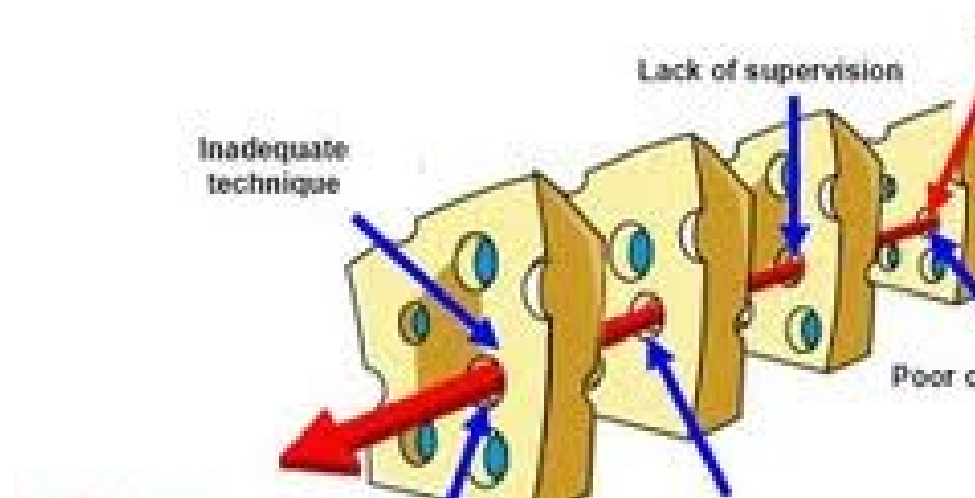
5. PPE

# RISK RANKING is VITAL FOR ALL RISK MANAGEMENT PLANS

The risk assessment facilitates risk management: It is about eliminating or minimising the likelihood of an adverse event.

It is not about rolling the dice

- It is about controls and intervention
- It is about training and supervision
- It is about continuous improvement
- It is about minimising the Swiss cheese scenario



# WATER QUALITY RISK MANAGEMENT: THE DEVIL IS THE DETAIL

**Decisions, Decisions, too many Decisions**  
CONSEQUENCES – action or inaction

**STANDARDS** define minimum requirements!

However, Standards can also generate some ambiguity that  
can cloud decision processes

**EXAMPLE: Routine monitoring of Biologicals**

**Endotoxins (A\*=ANNUALLY) and**

**TVCs (M\*\*\*\* / A\*?)**

**from 2019 revised ASNZS4187**

# WATER QUALITY RISK MANAGEMENT: THE DEVIL IS THE DETAIL

**Endotoxins** \*A=annually

\*“frequency may be adjusted (increased or decreased) according to the test results to ensure they remain within specifications “ ..

**Total Viable Count TVC** M\*\*\*\*= monthly

Or

“ annually provided the test results remain within specifications” ..

# WATER QUALITY RISK MANAGEMENT: THE DEVIL IS THE DETAIL

Consider if the Annual Endotoxin or TVC tests FAILED  
?Consequences?

## QUESTIONABLE WATER QUALITY!

1. How long has this parameter been non-compliant?
2. Would more frequent monitoring have helped avert other system problems that may now be arising?
3. Have there been any adverse patient outcomes?
4. Would more frequent monitoring have provided confidence by?
  - a) Documented evidence = **robust data**
  - b) Activated control systems and processes (**TARPs**)
  - c) Facilitated **Preventative** rather than reactive measures

**Frequent data validates actions, confidence and reduces liabilities**  
**Reduced frequencies must be based on data but**  
**Do not jeopardise confidence in water quality**

# WATER QUALITY RISK MANAGEMENT: THE DEVIL IS THE DETAIL

Consider if the Annual Endotoxin or TVC tests FAILED

Annually ..or

Monthly for 12 months and than annually provided test results remain within specifications:

## POSSIBLE INTERPRETATIONS:

a) Just conduct another 1x Endotoxins or 1x TVC test once to show compliance

OR

b) If the annual test for endotoxins or TVC is non-compliant, revert to monthly for 12 months?

**Ambiguity/Confidence?**

# HAZARD IDENTIFICATION

**Table 7.2: ASNZS 4187  
Water quality for reprocessing RMDs**

| Chemical Analysis Parameters              | Cleaning Process | Final Rinse (final water rinse conducted on the RMD) |
|---|------------------|--|
| Appearance                                | clear colourless | clear colourless                                     |
| <b>pH at 25°C</b>                         |                  | <b>5.5-8.0</b>                                       |
| <b>Conductivity at 25°C</b>               |                  | <b>30 µS/cm</b>                                      |
| Total Dissolved Solids (TDS) @180 degrees |                  | 40mg/L   |
| Total Hardness (CaCO <sub>3</sub> )       | 60 mg/L          | ≤10 mg/L   |
| Chloride                                  | 120 mg/L         | ≤10 mg/L   |
| Lead                                      |                  | NA   |
| Iron                                      |                  | ≤0.2 mg/L  |
| Phosphate (PO <sub>4</sub> )              |                  | ≤0.2 mg/L  |
| Silicate (SiO <sub>2</sub> )              | 2 mg/L           | ≤1.0 mg/L  |
| <b>Total viable count</b>                 |                  | <b>100 cfu/100ml</b>                                 |
| <b>Endotoxin (EU/mL)</b>                  |                  | <b>0.25 EU/mL</b>                                    |

# UNDERSTANDING THE HAZARD CRITICAL FOR SUCCESSFUL RISK MANAGEMENT

## **1. Conductivity:** (Max of 30 $\mu$ S/cm)

- Dissolved salts – metals and chlorides

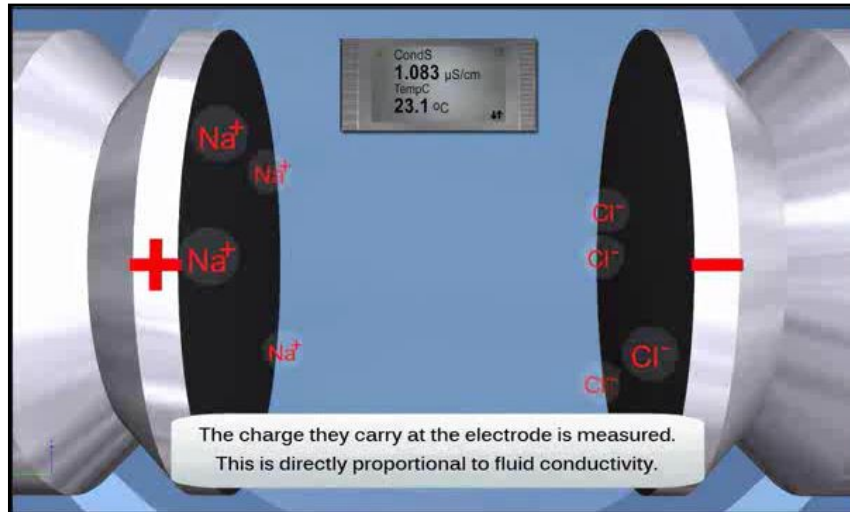
## **2. pH** 5.5 to 8.0 units

## **3. Biologicals**

- Bacterial counts as total viable counts
- Endotoxins

# Conductivity – water’s ability to conduct electrical current

## Low Conductivity

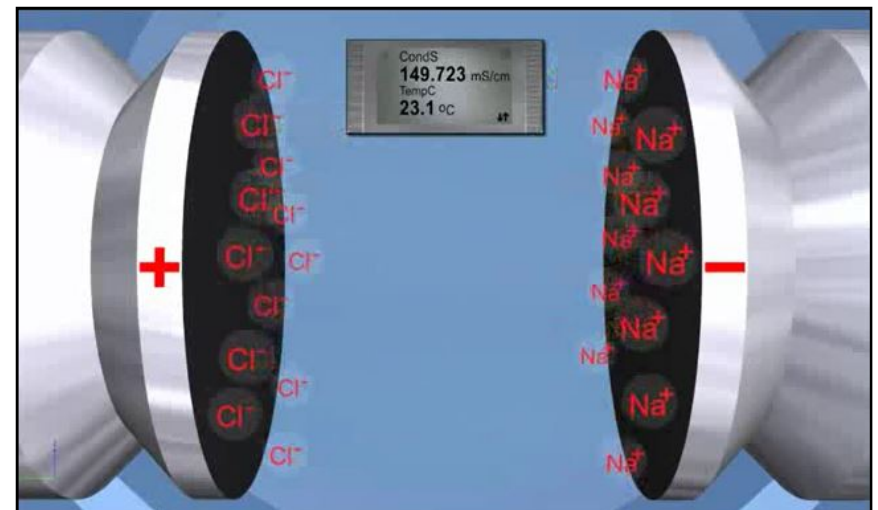


Low Conductivity (low salt) – RO  
Reverse osmosis water has low salts

High Conductivity (high salt) – sea water

Reverse Osmosis removes salts

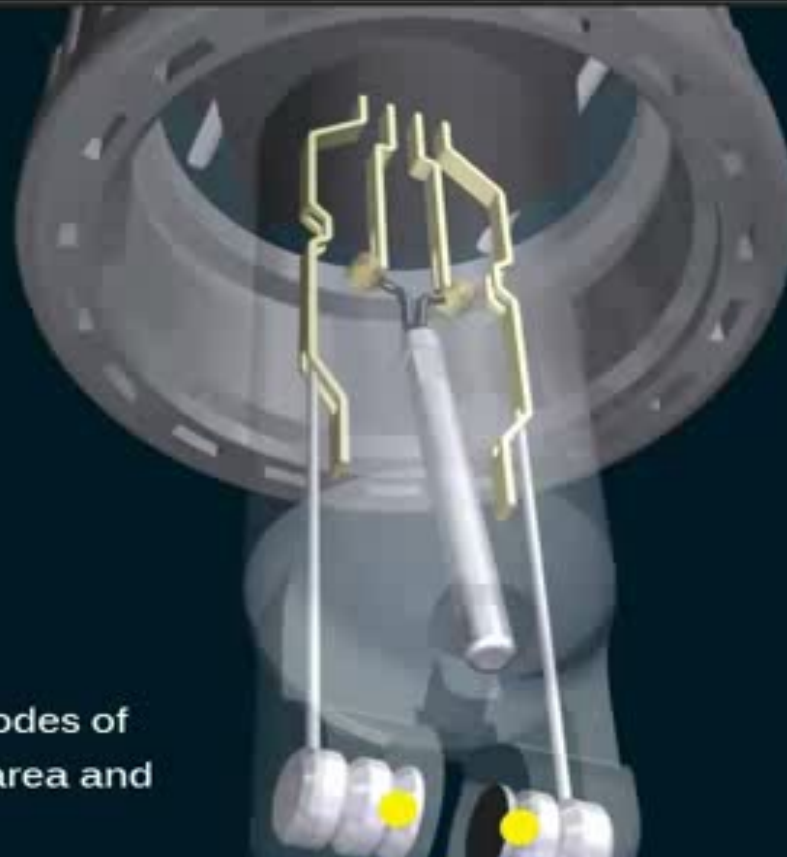
## High Conductivity



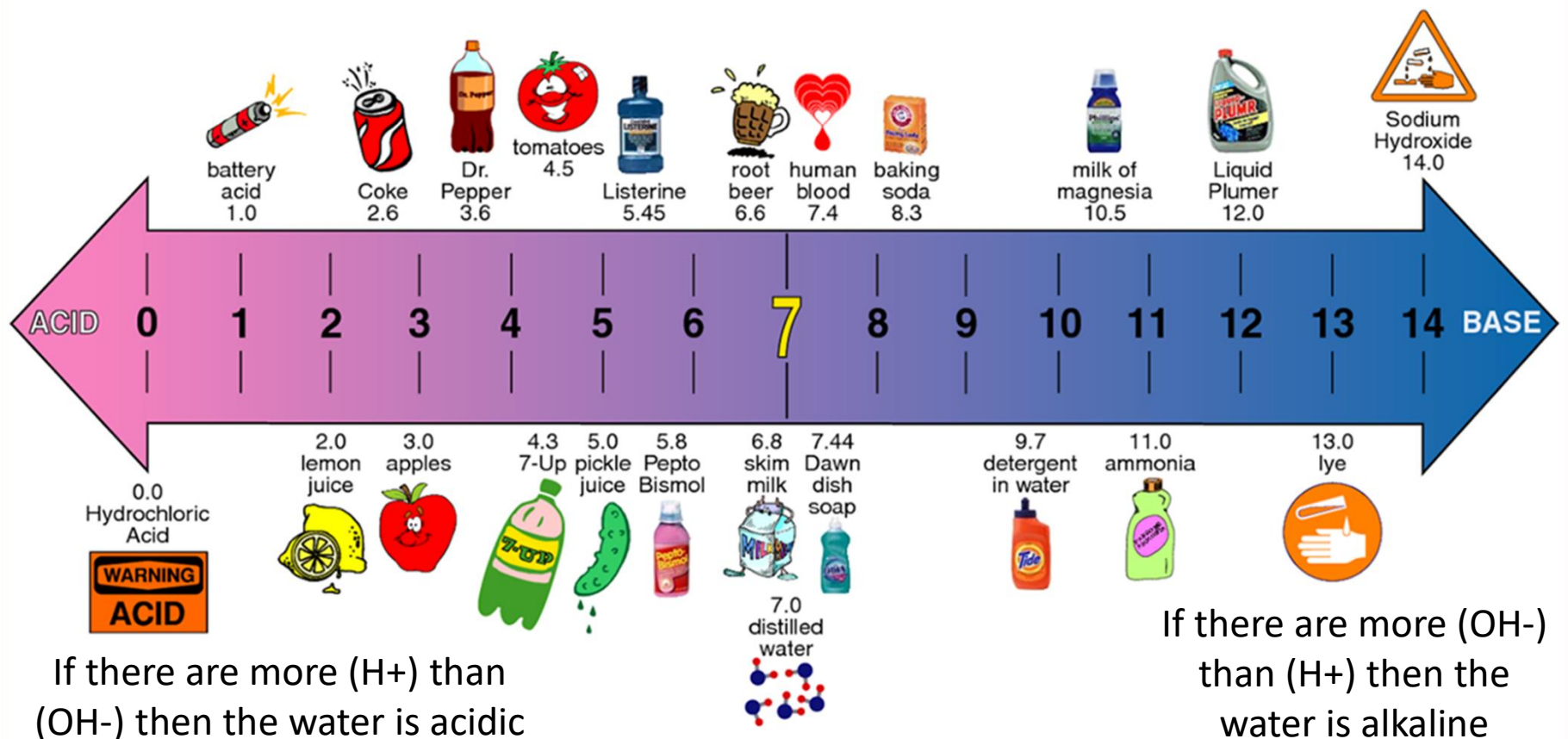
# Conductivity – water’s ability to conduct electrical current

Conductivity meters ..

Have two electrodes of known surface area and distance apart.



# pH of Common Substances



# pH – what is it?... potential of Hydrogen

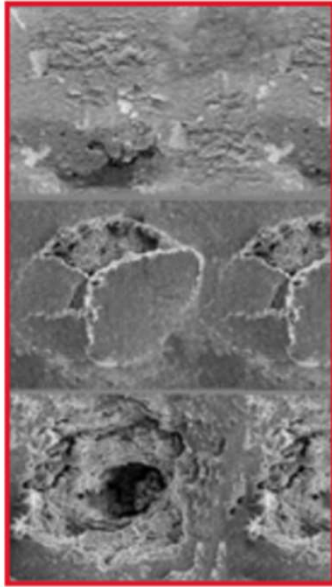


**pH** (potential of hydrogen) is a scale of acidity from 0 to 14. It tells how acidic or alkaline a substance is. More acidic solutions, have lower **pH** and more alkaline solutions have higher.

Low pH is corrosive – Acidic



# Instrument Corrosion



Scanning electron microscope image of chloride-induced pitting



Typical silicate discolouration on the surface of the instrument after steam sterilization caused by excessive silicon dioxide levels in the demineralised water

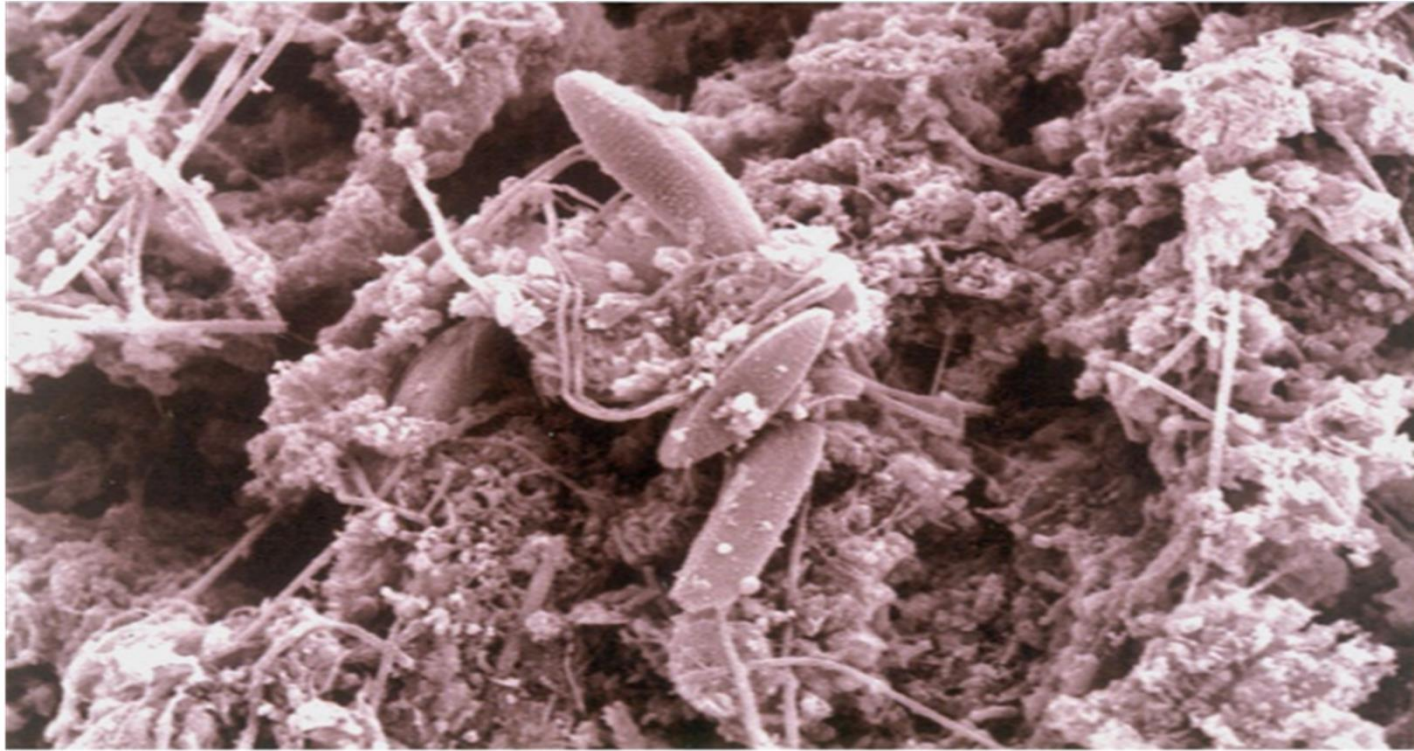
# pH + Salts in Collaboration - Instrument Corrosion



Pitting induced by exposure to halide ions (chlorides, bromides and iodides), but especially chlorides, on stainless steel instruments

Costly both in terms of adverse health outcomes and replacement of medical devices

# Biologicals - Biofilm



(Courtesy Rodney Donlan and Donald Gibbon, by permission from ASM MicrobeLibrary.)

**Natural biofilm on a metal surface. Scanning electron micrograph of a native biofilm that developed on a mild steel surface in an 8-week period in an industrial water system.**

# Gram Negative Bacteria - Endotoxins

- 1. Bacterial membrane debris;** proteins, sugars and LPS (lipopolysaccharides)
  - Non living
- 2. Not readily removed by sterilisation procedures**
  - Persistent
  - Heat Resistant
- 3. Anaphylactic substances**
  - pyrogenic / fever without infection
- 4. Patients - Cumulative Effects**
  - via long term repetitive exposures - catheters, surgery and dialysis
  - Allergic reactions via eliciting hormone pathway/cascades

**Is 0.25EU/ml for Endotoxins low enough?**

# Decide on Control Measures to manage exposure to identified risks

## Hierarchy of Controls

1. Try to Eliminate the hazard
2. Design out the hazard or Substitute the hazard with less hazardous substance, material or equipment
3. Redesign the hazard by using **engineering** controls, Isolate the hazard from the person or Separate the person from the hazard
4. Introduce Administrative controls such as safe work procedures, training, supervision, job rotation
5. Use Personal Protective Equipment (PPE) as the final barrier between people and the hazard

# REVERSE OSMOSIS: A WATER QUALITY RISK MITIGATION STEP

What s Reverse Osmosis (RO)?

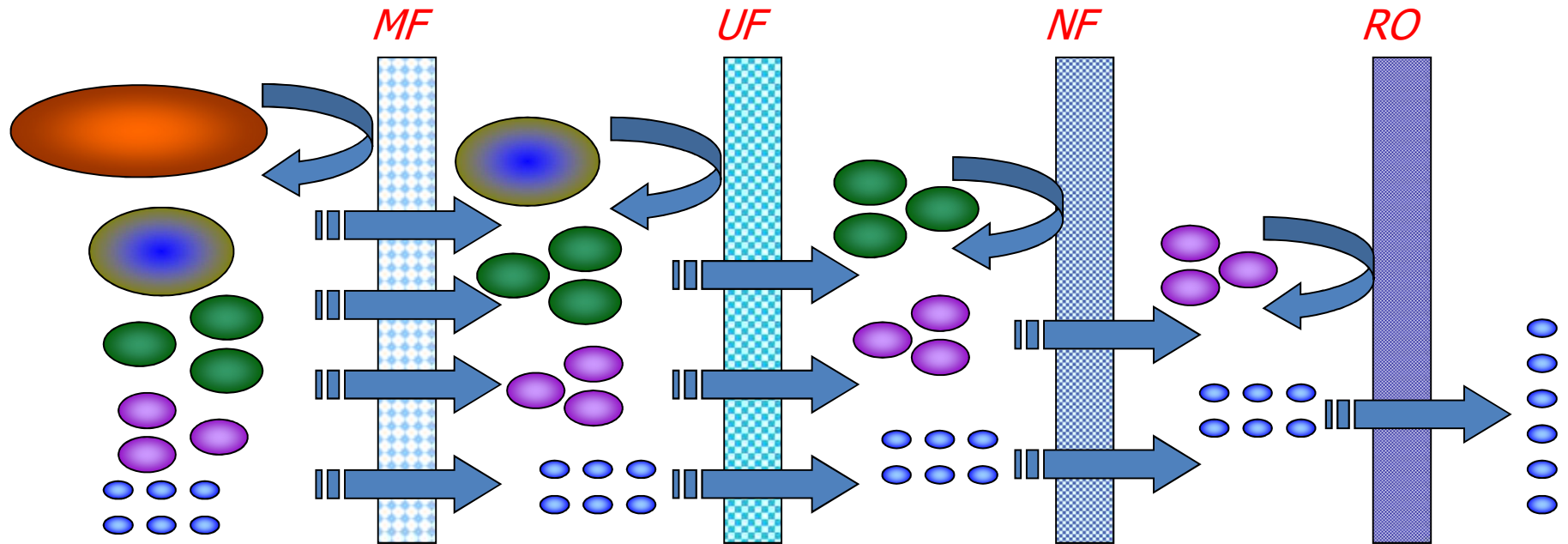
**and**

**Are there downstream problems/risks?**

- **Disinfection**
- **pH control**
- **Ionic Corrosion**

**How do we control these new  
effects?**

# Reverse Osmosis – risk mitigation for CSSD Water: A Size Exclusion Process



 *Suspended Solids (Particles)*

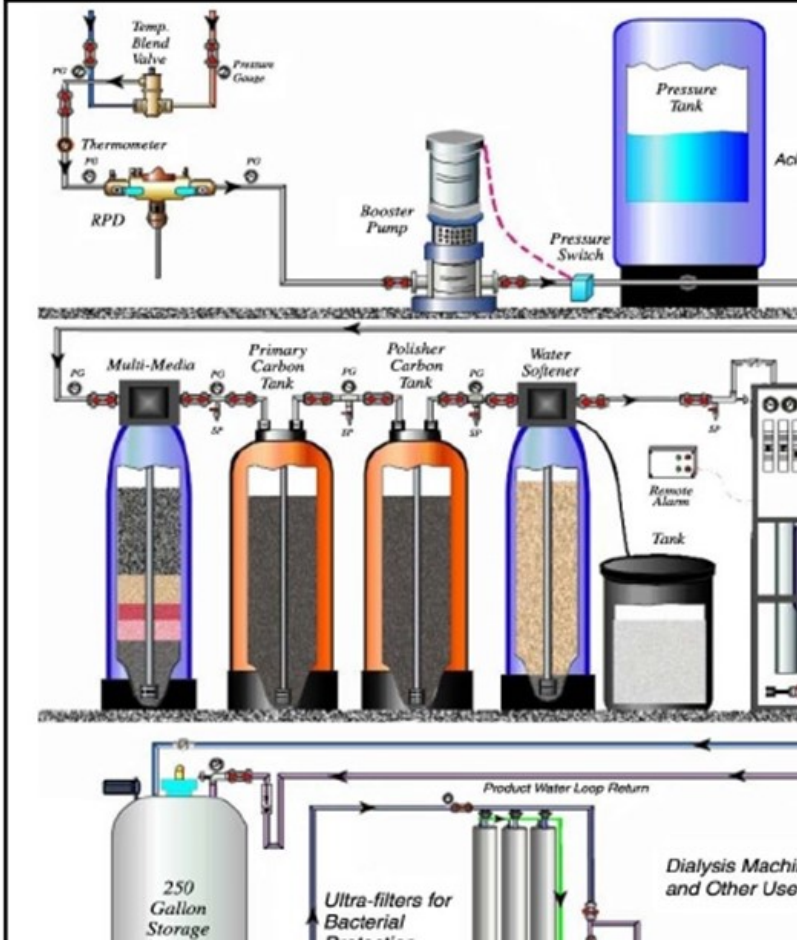
 *Macromolecules (Humics)*

 *Multivalent Ions (Hardness)*

 *Monovalent Ions ( $\text{Na}^+$ ,  $\text{Cl}^-$ )*

 *Water Molecules*

# Water Treatment Plants Come in Many Configurations



# RO plants also come in many configurations



# RO plants also come in many configurations

An example of a water treatment with RO:

1. Compact size
2. Softener (removes Ca and Mg hardness)
3. Salt reservoir
4. Prepack-particle & carbon filter
5. RO-filter
6. Electrodeionisation EDI (polishing)
7. UV-light
8. Water Tank 300L
9. Pump RO
10. Control and power unit
11. Distribution pump
12. Sample points



# Water Quality Risk Management Plans (WQRMPs)

## 1. Water Source

2. Manufacture, Supply and Storage- **Reverse Osmosis**
3. Maintenance – Scheduled
4. Quality controls – confidence and **compliance**
5. **Risk Assessment and Ranking** / Management
6. Communications, understanding, **training/education**
7. Monitoring – on site **“daily”** and **certified third-party**
8. Analysis – **fit for purpose** / Standards
9. Reporting and a Chain of Command
10. Compliance ranges
11. Controlled Responses – **Trigger Action Response Plans (TARPs)**
12. Collaboration of all stakeholders – (a **water team** – no silos)

# WQRMP SUCCESS

Through **TEAMWORK = COMMUNICATION**

**Medical and CSSD**



**Bldg. Engineer. Maint.**



**Water Team Meeting**

**Training**

**Communications**



**Team Work**

**Understanding**

**Goals**

# For Success in WQRMP

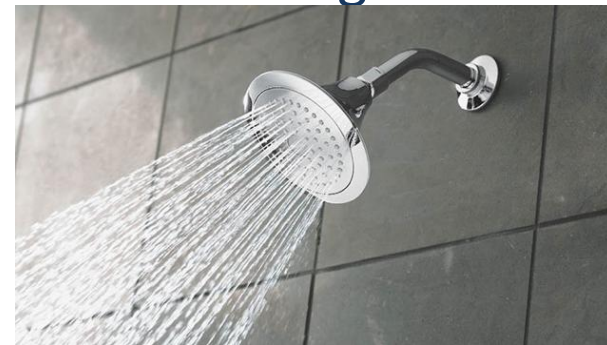
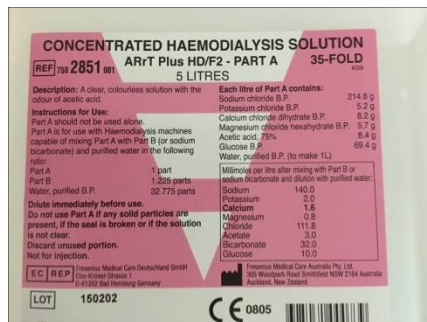
CSSD on site staff “daily” monitoring vital



CSSD - Easy to use  
pH and  
conductivity  
checks



Criticality of Water for Dialysis and General Patient Facilities -  
e.g. Showers



# Water Quality Risk Management Plans (WQRMPs)

## Monitoring – **certified competent third-party monitoring**

1. Confidence
2. No conflicts of interest
3. Independent schedules
4. Reliability



# **WQRMPs:**

## **Laboratory Analysis – Subtleties**

Analysis – **“Fit For Purpose”** does not simply mean NATA accredited?

For example:

Legionellae Analysis by:

- ASNZS 3896 Cooling system waters (10%UC)
- AS 5132 – Drinking waters (50-70% UC)
- ISO 11731 – Drinking Waters (10%UC)

**Why use AS 5132?**

# WQRMPS

Monitoring Schedules Frequencies – “Snapshots”

Infrequent – large number key points **Verses**

Frequent – snapshots / small number key points

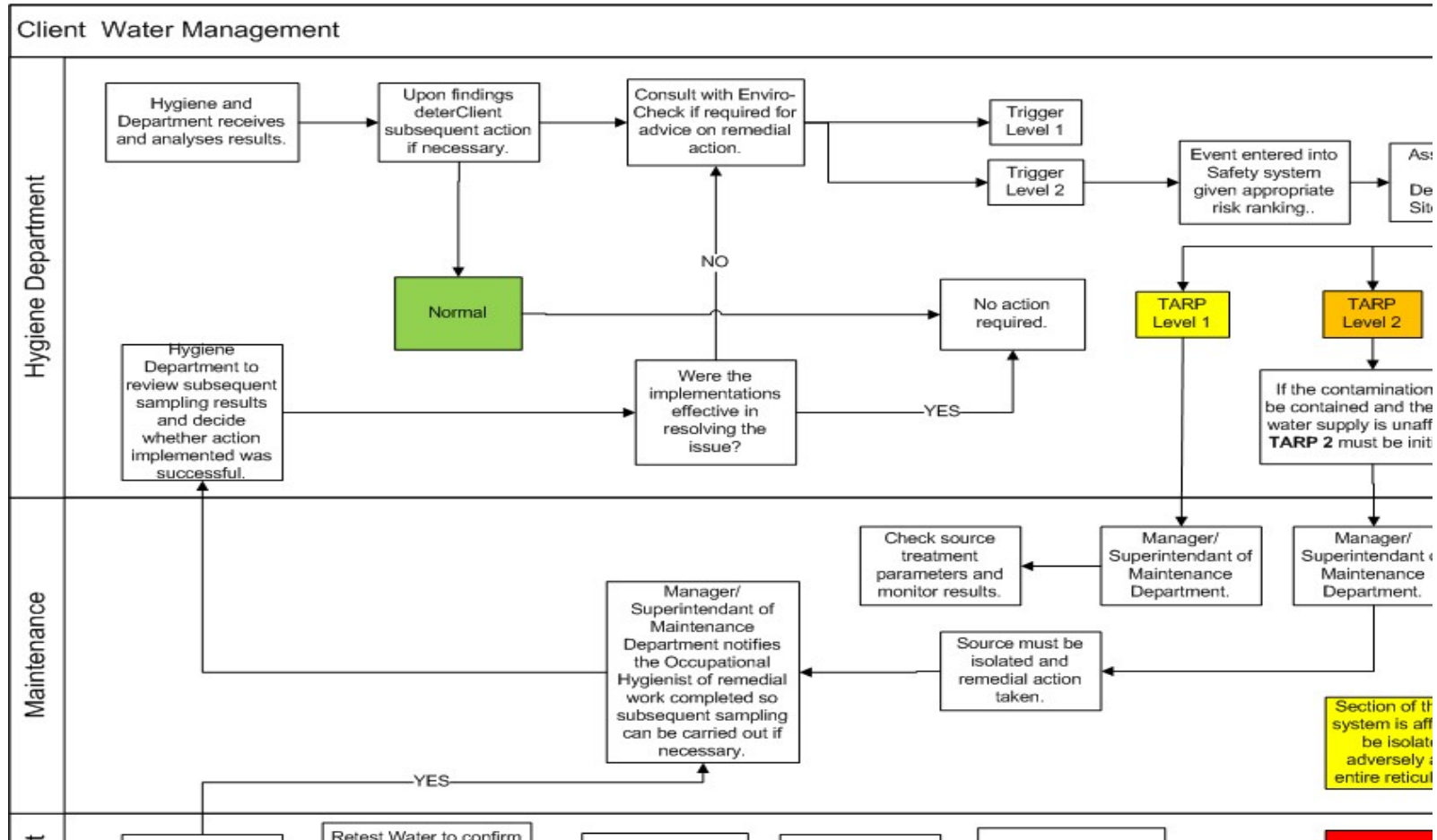


| Roster 1 |                                | Roster 2 |                               | Roster 3 |                               | Roster 4 |                               |
|----------|--------------------------------|----------|-------------------------------|----------|-------------------------------|----------|-------------------------------|
| CAN011   | GAC Chiller                    | CAN011   | GAC Crib Room Tap             | CAN009   | GAC Chiller                   | CAN011   | GAC Crib Room Tap             |
| CAN012   | MAC Chiller                    | CAN012   | MAC Crib Room Tap             | CAN010   | MAC Chiller                   | CAN012   | MAC Crib Room Tap             |
| CAN017   | Raw Water Tank Manifold        | CAN017   | Raw Water Tank Manifold       | CAN017   | Raw Water Tank Manifold       | CAN017   | Raw Water Tank Manifold       |
| CAN018   | RO Plant Potable Water Outlet  | CAN018   | RO Plant Potable Water Outlet | CAN018   | RO Plant Potable Water Outlet | CAN018   | RO Plant Potable Water Outlet |
| CAN025   | Village Potable Tank           | CAN025   | Village Potable Tank          | CAN025   | Village Potable Tank          | CAN025   | Village Potable Tank          |
| CAN028   | Village Kitchen Source         | CAN028   | Village Kitchen Source        | CAN028   | Village Kitchen Source        | CAN028   | Village Kitchen Source        |
| CAN040   | 450 Level Workshop Chiller     | CAN040   | 450 Level Workshop Chiller    | CAN040   | 450 Level Workshop Chiller    | CAN040   | 450 Level CRIB ICE MACHINE    |
| CAN041   | 450 Level Crib Room Tap        | CAN041   | 450 Level Crib Room Tap       | CAN041   | 450 Level Crib Room Tap       | CAN041   | 450 Level Crib Room Tap       |
| CAN042   | 570 Level Crib Room Tap        | CAN042   | 570 Level Crib Room Tap       | CAN042   | 570 Level Crib Room Tap       | CAN042   | 570 Level Crib Room Tap       |
| CAN043   | 570 Level Crib Room Chiller    | CAN043   | 570 Level Crib Room Chiller   | CAN043   | 570 Level Crib Room Chiller   | CAN043   | 570 Level Crib Room Chiller   |
| CAN044   | 75 Level Hand Wash Tap/chiller | CAN044   | 75 Level Hand Wash Tap        | CAN044   | 75 Level Hand Wash Tap        | CAN044   | 75 Level Hand Wash Tap        |
| CAN001   | Core Yard Crib Room Tap        | CAN021   | Village Laundry main          | CAN004   | Change House Ice Machine East | CAN056   | Grinding Control Room         |
| CAN007   | ERT Room Chiller               | CAN054   | LV Workshop                   | CAN060   | 450 Level Ice Machine         | CAN036   | Yurbi Potable Water Tank      |
| CAN032   | Village Laundry west           | CAN013   | Paste Plant Crib Chiller      | CAN006   | Change House Chiller 1        | CAN037   | Yurbi Crib Tap                |

# WQRMP: example, Legionella TARP

|                                       | Normal                   | Level 1<br>Low<br>Probability<br>of Health<br>Impacts | Level 2<br>Moderate Probability of Health Impacts  | Level 3<br>High Risk of Adverse Health Impacts  |
|---------------------------------------|--------------------------|---|--|---|
| <b>Trigger</b>                        | Legionella not detected. | Legionella not detected.                              | Legionella detected but less than 1000cfu/ml.  | Legionella detected and counts greater than 1000cfu/ml.   |
| <b>Criteria for downgrading alert</b> | N/A                      | N/A   | If two klklafgpoka gpo;lk ;l akr treatment.  | If sd;fgls f;glkporep;fkl S;flk disinfection.   |
| <b>Monitoring</b>                     | Monthly                  | Monthly   | Monitor sdkljasj;la fojanna; noigokl mkl fgklmla vl;vaa;vln;ln ;lna;adfnl zc m;kln fo ; c;nkm c mzmlz jnfbosjisj l;lz xcklnz l lzz'l 'l l ko lz; z zmk z;mmlz 'lmz k'lm'dvsdkospioepwipweomamzkl'pzxcj'lvmp]v ZZz  | Monitor Monitor sdkljasj;la fojanna; noigokl mkl fgklmla vl;vaa;vln;ln ;lna;adfnl zc m;kln fo ; c;nkm c mzmlz jnfbosjisj l;lz xcklnz l lzz'l 'l l ko lz; z zmk z;mmlz 'lmz k'lm'dvsdkospioepwipweomamzkl'p                                    |
| <b>Actions</b>                        | N/A                      | N/A   | Investigate possibilities of Monitor sdkljasj;la fojanna; noigokl mkl fgklmla vl;vaa;vln;ln ;lna;adfnl zc m;kln fo ; c;nkm c mzmlz jnfbosjisj l;lz xcklnz l l (Appendix H & I). <ul style="list-style-type: none"> <li>Consult with water treatment specialists.</li> <li>Conduct system drain and clean if heavily fouled with solids and scale.</li> </ul> | Prevent all Monitor sdkljasj;la fojanna; noigokl mkl fgklmla vl;vaa;vln;ln ;lna;adfnl zc m;kln fo ; c;nkm c mzmlz jnfbosjisj l;lz xcklnz l lzz'l 'l l ko lz; z zmk z;mmlz 'lmz k'lm'dvsdkospioepwipweomamzkl'pzxcj'lvmp]v ZZzk Zk ;lMandatory |
| <b>Notification</b>                   | N/A                      | N/A   | Infrastructure and Clasdka fjk afajmklavk'asd vsd;;l'asd d';lkav';l kad;'asdf lsd f';lak; Notify all affected personnel.   | General Manager. Infrastructure asdakld ;klfasd po;'l;lkasd f Notify all affected personnel.  |

# WQRMP: Chain of Command



# Coming Together – No “I” Team

Hazard identification, risk assessment  
and risk control for your WQRMP  
requires a diverse Team



# Coming Together – No “I” Team

Many specialist and general departments **must** interact together:

1. Water plant operations – Reticulated supply materials and storage
2. Disinfection control through the reticulated network?
3. Supply and demand – long retention times?
4. **Detergents and cleaning aids** to suite wash waters and enable rinsing without residue
5. **Confidence** representative monitoring schedules and sample collection

# Management of Water: coming together

Many specialist and general departments **must** interact together:

5.pH control of RO Waters?

6.Monitoring schedules, reporting, defined responses

7.Establishing CSSD procedures – routines

8.Communications and Understanding

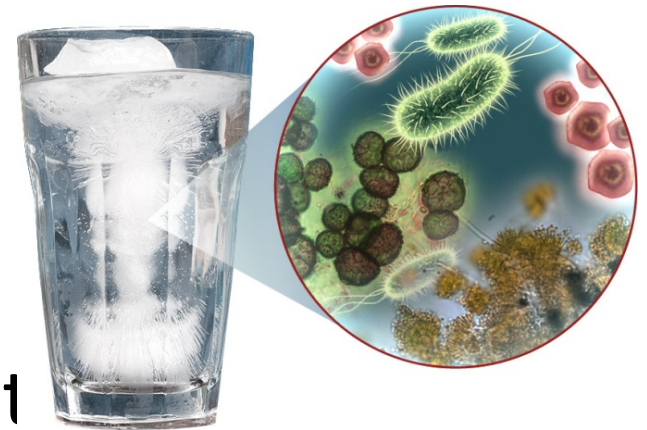
9.Chain of Command, WQRMP and TARPs

10. **Criticality** of a sample – artifact verses actual..

# Understand Why, How and Where to sample?

Sample points -Endoscopes, RO, Final Rinse?

- **microbiological** organisms
- or
- **physical/chemical** paramet



# Inter- Department Connection, Goals and Understanding



## **BEYOND SIMPLY REPORTING OF RESULTS**

- Water Quality Risk Management Plans (**WQRMPs**)
- Trigger Action Response Plans (**TARPs**)
- **TRAINING** – ECA empowers your staff through our Nationally accredited training (The Learning Collaborative RTO#32350)
- **ISO IEC 17025** accredited laboratory and field analysis
- **AUDITS** risk assessments for healthcare services, commercial, industrial, domestic cooling towers and evaporative air-coolers

# THE WINDOW IN TIME IS NOW

1. **Plan and budget** to achieve the **transition** to a WQRMP and meet the requirements of ASNZS 4187
2. Understand water source type
3. Water Plant Operations
  - *Skill, competency, monitoring*
4. Reticulation System /Storages
5. Quality analysis- ISOIEC 17025
  - Fit For Purpose



# THE WINDOW IN TIME IS NOW

6. Daily monitoring of key parameters
7. Third party monitoring sand sampling – snapshots
8. Interpretation/Understanding
9. System Development - WQRMP
10. Implementation/evolve/adapt
11. Sample, report, respond
12. Measured and Controlled responses  
(TARPs) as per your WQRMPs
11. Communications, meetings
12. Training for staff
13. Establishment of your water team



# SIMPLICITY IS THE KEY BEHIND EFFECTIVE WQRMP



1. Managing the laboratory –ISOIEC 17025

- Fit for purpose / Targeted Analyses
- Sample collection and field analysis

2. Ongoing Support Services

(a) Active Participants – A WATER TEAM

- Workshops / Meetings / Training

(b) Defined WQRMP and TARPs

(c) Accredited sample collection

(d) Broad Expertise in RO and WTP Ops

**Foundations for confidence/water quality CSSD**

# THE POWER OF WATER - CONQUERS



ECA – Facilitates Water Quality In Healthcare  
for a True  
Consolidation of Expertise behind your  
WQRMP



**You are welcome to contact us directly  
or one of our team anytime**

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