# Package Treatment Plant Operation and Management Cessnock, NSW 8-9 June 2021

# Package Treatment Plant Operation and Management Regulatory Controls and Compliance Image: Stream of the stream o

# State Legislative Framework

#### State Government

- Protection of the Environment Operations (PoEO) Act 1997
  - Sewage Treatment Schedule 1 activity
  - Including plant, pump stations, overflow works and reticulation
  - Limits of application >2,500EP or >750kL per day
  - Operated using individual Environmental Protection Licences (EPL's) and administered by (EPA)

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# **State Planning Framework**

#### State Government

- Environmental Planning and Assessment (EP&A) Act 1979
  - Section 79(C) Matters for Consideration (general)
  - Consent Authority must consider:
    - The likely impacts of a development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality
    - This includes the wastewater management system(s) of a development

## Local Legislative Framework

#### Local Government

- Protection of the Environment Operations (PoEO) Act 1997
  - Council is Appropriate Regulatory Authority (ARA) for plants treating <750kL per day</li>
  - Council officers are able to manage operation of such plants using the authority available under the Act

## Local Planning Framework

#### Local Government

- Local Government Act 1993 (Section 68)
- Council approval required to:
  - Install, construct or alter a waste treatment device or a human waste storage facility or a drain connected to any such device or facility not licensed by EPA
  - Operate a system of sewage management including:
    Treatment plants, wetlands, mounds, trenches, effluent polishing systems and related land application or re-use
- 2.1 Centre for Environmental Training



## **NSW (State) Regulation**

Protection of the Environment Operations (General) **Regulation 2009** 

- Ch. 2 Part 1 sets out licensing requirements for Environmental Protection Licence (EPL) holders Fees, periods etc.
- Ch. 4 Part 2 sets out reporting and record keeping requirements for EPL holders Monitoring parameters, concentrations limits, monitoring
- locations etc Ch. 6 – sets out offences and penalties for EPL
- holders

## **NSW (State) Regulation**

- Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) 2012
- Regulation sets out requirement for 'preparation and implementation of a "Pollution Incident Response Management Plan (PIRMP)" for each licensed activity
- Also requires stricter reporting of (actual/potential) pollution incidents and publishing of results

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# **NSW (Local) Regulation**

Local Government (General) Regulation 2005

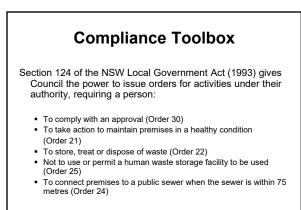
- §44(1) sets performance standards:
  - Prevention of disease; odours; water contamination; soil/vegetation degradation; vermin; human contact; amenity and re-use of resources
  - Operation in accordance with specifications and procedures
- §45 sets conditions of approval:
  - · Compliance with Regulation; system maintenance and sanitation; system accreditation (≤10EP); evidence of compliance

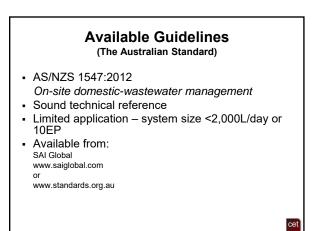
# **Compliance Toolbox** The PoEO Act (1997) gives Council (the ARA) the power to issue facilities or activities approved under their authority Section 91/93 - Clean-up Notices Written/verbal direction to take specified "immediate" action (§91(1)) Maximum penalties - \$1M (corporation) and \$250K (individual)

Section 96 – Prevention Notices

with:

- Written direction to take specified "remedial" action (§96(2))
- Maximum penalties \$1M (corporation) and \$250K (individual)
- Section 104 Compliance Cost Notices Written direction to pay for all reasonable costs associated with enforcing requirements of a Clean Up Order (§104(1)), Prevention Notice (§104(3)) or Prohibition Order (§104(4))







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#### Available Guidelines (The Australian Standard)

- Package Plants not "technically" covered
- System Size = <2,000 L/day</li>
- · Provides some relevant information on:
  - Part 2 Risk Management
  - Part 3 Management
    - Procedures, roles, training, O&M and monitoring
  - Part 4 Performance
    - Site capability assessment, land application, treatment processes, construction and installation, monitoring

# Available Guidelines (NSW Guideline – Environment & Health Protection Guidelines – The Silver Book) . Encourages systematic approach to system design . Applicable for small systems only - <2000L/day . Available from: Office of Local Government https://www.olg.nsw.gov.au/wp-content/uploads/Onsite-sewage-managementguide.pdf

## Available Guidelines

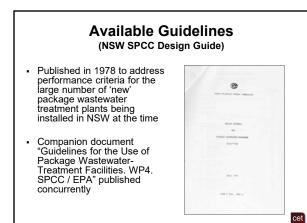
(NSW Guideline – Environment & Health Protection Guidelines – The Silver Book)

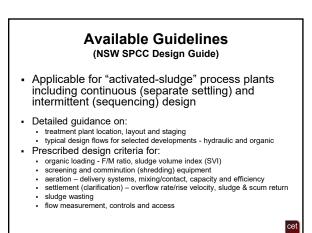
1998 document now rather dated

- Many recent advances in technology and management
- 2003 Technical revision not released
- WaterNSW Designing and Installing On-site Wastewater Systems (A Water NSW Current Recommended Practice) provides more up-to-date information, but main focus is domestic systems

## Available Guidelines (NSW Guideline – Environment & Health Protection Guidelines – The Silver Book)

- Minimal applicability System Size <2,000 L/day</li>
- Provides some relevant information on:
  - Section 3 Regulation
    Auditing, monitoring, reporting and training
  - Section 4 Evaluation
    Site capability assessment, risk management and reporting
  - Section 5 System Options
    Waste characterisation, simplified process descriptions, land application systems and common effluent sewer (decentralised systems)
  - Section 6 System Selection
    Matching system to site conditions and investigating alternate technologies (options assessment)





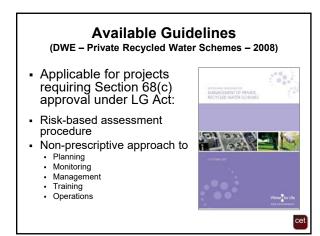


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#### Available Guidelines (NSW SPCC Design Guide)

- Additional information on:
  - · Further treatment opportunities including -· polishing ponds (10 days Average Dry Weather Flow (ADWF))
  - disinfection (chlorination)
  - Plant monitoring
  - Routine performance testing and process control
  - · Acidity and alkalinity management
  - · Keeping of records



# Available Guidelines (DECC - Effluent Irrigation - 2004)

Additional detailed information on:

- Planning and site selection including Site capability (soils etc.) Constraints and opportunities
- Effluent characteristics
- Design considerations including -
- Climate and nutrient modelling Difficult constituents (salinity, heavy metals etc.)
- Irrigation setup and scheduling
- Operation and maintenance (O&M)
- · Licensing and compliance



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# **Available Guidelines** (Other States)

- EPA Vic Code of Practice for Small Wastewater Treatment Plants
  - Design Guidance systems < 500EP Bio-filtration, activated sludge and stabilisation ponds
- DPI QLD Plumbing and Wastewater Code (2009) Performance criteria – systems < 20EP</li> criteria and solutions for system design, layout, construction, effluent quality, documentation and reporting
- DPIWE TAS Emission Limit Guidelines for Sewage Treatment Plants
- Performance limits and discharge criteria systems < 500kL/day</li>
  limited to surface water discharge systems

## **Available Guidelines** (Overseas)

New Zealand – Ministry for the Environment (MFE)

- Sustainable Wastewater Management A handbook for smaller communities.
- Detailed guidance on system options, decision making, selection, siting and design, performance, management and costing
- USA Technology Fact Sheets. USEPA
  - Aerobic Treatment, Anaerobic Lagoons, Chemical Precipitation, Facultative Lagoons, Membrane Bio-reactors, Oxidation Ditches, Package Plants, Screening, Sequencing Batch Reactors, Trickling Filters, Aerobic Treatment, Wetland systems, Disinfection

#### Europe (Germany, Norway, U.K.)

BS EN 12566-3 Code of Practice for design and installation of Small Wastewater Treatment Systems - Packaged and/or Site-assembled Domestic Wastewater Treatment Plants

### **Reference Manuals** Wastewater Engineering - Treatment and Reuse (5th ed.), Metcalf and Eddy (2013) Small and Decentralized Wastewater Management Systems, Crites and Tchobanoglous (1998) Water and Wastewater Engineering – Design Principles and Practice, M. L. Davis (2010) Operation of Wastewater Treatment Plants (Volumes I & II), USEPA Office of Water Programs (2002) Handbook for the Operation of Wastewater Treatment Works, Water Institute of Southern Africa (2002) Selecting Package Wastewater Treatment Works, Project report 72, CIRIA (2001)



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