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
 - 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

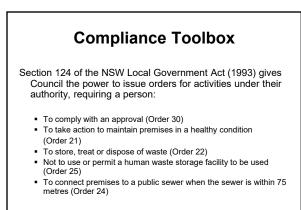
- §44(1) sets performance standards:
 - Prevention of disease; odours; water contamination; soil/vegetation degradation; vermin; human contact; amenity and re-use of resources
 - Operation in accordance with specifications and procedures
- §45 sets conditions of approval:
 - · Compliance with Regulation;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

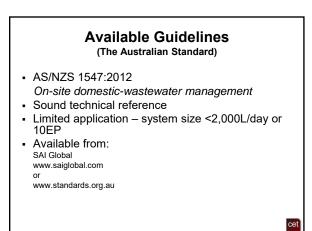
Compliance Toolbox The PoEO Act (1997) gives Council (the ARA) the power to issue facilities or activities approved under their authority Section 91/93 - Clean-up Notices Written/verbal direction to take specified "immediate" action (§91(1)) Maximum penalties - \$1M (corporation) and \$250K (individual)

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
- · 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

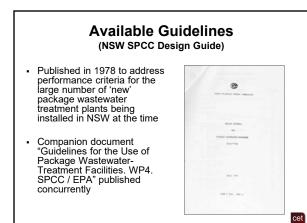
(NSW Guideline – Environment & Health Protection Guidelines – The Silver Book)

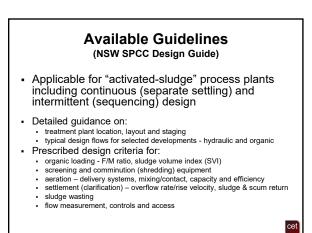
1998 document now rather dated

- 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
- 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)





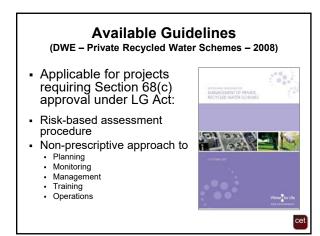


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Available Guidelines (NSW SPCC Design Guide)

- 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 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
 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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