



An Roinn Tithíochta,
Pleanála agus Rialtais Áitiúil
Department of Housing,
Planning and Local Government



Water Services Training Group

23rd Annual Conference

Delivering sustainable water services

Clayton Silver Springs Hotel, Cork

10 October 2019



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Achieving Compliance Through SOP's and Process Optimization

Presented by:

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**Clayton Silver Springs Hotel, Cork
10 October 2019**

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Compliance

Compliance

“The act of being in accordance with established standards, guidelines, or legislation”

- Drinking Water Regulations
- Wastewater Discharge (Authorisation) Regulations

Process Optimization

Achieving efficient and compliant operations.

- Establishing and implementing Site Specific Operating Procedures (SSOP's)
- Monitoring and Reviewing

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Standard Operating Procedure (SOP) Development

SOP Project

The SOP's were devised by working groups composed of Local Authority & Irish Water Staff

and approved by the Water Technical & Environmental Forum (WTEF) in Irish Water

Water Treatment SOP's Approved

- Raw Water Intake
- Coagulation Flocculation Clarification
- Filtration
- Disinfection
- Primary Disinfection
- pH Correction
- Fluoride Dosing
- Water Treatment Residuals

Wastewater Treatment SOP's Approved

- Preliminary Screen Maintenance
- Storm Water Storage
- Activated Sludge Including Nitrification
- Trickling Filter
- Chemical Precipitation of Phosphorus
- Sequential Batch Reactors
- Rotating Biological Contactor

Where to find approved SOP's on LA Portal

The screenshot shows the LA Portal interface. On the left is a navigation menu with the following items:

- IA Change Network Calendar
- Libraries**
- Policies
- Process Maps
- Procedures
- Procurement Tools & Templates
- Protocols
- Work Instructions
- LA Change Network Library
- General Templates
- Guidance Documents
- Standard Operating Procedures
- Connection and Developer Services
- TW CDS FAQ Standard Details
- Connection And Developer Service Standard Details - Water
- Connection and Developer Service Standard Details Wastewater
- Training
- Protocol and System Training
- Annual Environmental Reports
- 2 Year

The 'Standard Operating Procedures' item in the 'Libraries' section is highlighted with a red arrow.

The main content area displays the text: "You can now use the new Outage Site available to the following link:" followed by the URL <http://thewell/sites/outage>.

Below the text is a map of Ireland divided into regions, each labeled with a name in a box:

- Donegal
- Sligo
- Leitrim
- Annagh
- Navarro
- Roscommon
- Longford
- Louth
- Galway
- Westmeath
- Meath
- Fingal
- Dublin City
- Dún Laoghaire Rathdown
- South Dublin
- Galway City
- Offaly
- Kildare
- Wexlow
- Clare
- Laois
- Limerick
- Tipperary
- Kilkenny
- Wexford
- Kerry
- Cork
- Waterford
- Cork City

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Drinking Water: SOP Pilot

Wexford County Council

Develop Catchment to Tap Management by Implementing Drinking Water Safety Plan (DWSP)

Promoted by the World Health Organization (WHO)

Davidson, A. et al, WHO (2005). *Water Safety Plans. Managing drinking-water quality from catchment to customer.*
http://whqlibdoc.who.int/publications/2009/9789241562638_eng.pdf.

and

Adopted by the EPA, Ireland.

EPA (2011), *Advice Note No. 8: Developing Drinking Water Safety Plans,*
<https://www.epa.ie/pubs/advice/drinkingwater/epadrinkingwateradvicenote-advicenoteno8.html>

A Drinking Water Supply is Deemed:

Safe if it meets the relevant drinking water safety standards at the tap

Secure if a risk management system, a DWSP is in place.

 **PROTECTION FROM CATCHMENT TO TAP** 

The WHO has set out 3 essential components for a safe and secure Drinking Water Supply:

1. Risk assessment of water supplies from catchment to consumer
2. Effective operational monitoring
3. Effective management

DWSP

SOP's integral to compliance.

Drinking Water Secure & Safe

SOP's and associated records

- are an integral part of a DWSP
- reduce risk of failure
- provide evidence during audit process
- provide reference for troubleshooting events

SOP's Provide Clarity

- Critical control points
- Alarm set point levels
- Action to be taken in event alarm
- Plant inhibit set points e.g. Shut Down or Run to waste

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Drinking Water: Site Specific Operating Procedures

Risk Reduction



Capable Asset



Properly Operated

Avoid!



SSOP: Main Outputs

Summary of:

Operational Checks | Operational Tasks | Troubleshooting

Templates:

Data Records | Check Sheets | Troubleshooting
List, Flow Chart etc.

Deficiencies Recorded:

Asset, Equipment, IT etc.

SCADA & Alarm update where required.

Operational Checks

ID	Check	Suggested Frequency	Target	Action	Responsible	Output
1	Safe yield at source	Daily	Adequate water available at extraction	Inform management if water levels at set low mark.	Operator/ Identified Staff	Daily Log

Operational Tasks

ID	Task	Trigger/ Frequency	Reference	Responsible	Output
1	Clean and operate all raw water screens, control valves & pumps.	List various frequencies	Operation & Maintenance manuals.	Operator/ Identified Staff	Daily Log

Trouble Shooting

ID	Trigger	Potential Consequences of Issue	Action	Responsible
1	Change in raw water characteristics.	Risk of chemical and/or biological failure.	Monitor CFC, adjust as required.	Operator/ Identified Staff

Templates



- Develop to ensure critical data recorded
- Standard recording templates customized to suit scheme requirements. Option to adopt existing where applicable
- User friendly design with required content only
- Developed by operational staff, scheme management and IW process optimization
- IT provision to suit operations, data capture, reporting etc.
- SCADA review where applicable

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**South Regional
Water Supply
Scheme (SRWSS),
Co. Wexford.**

Wexford Pilot:

South Regional Water Supply Scheme (SRWSS)

Source: Lowland River

Treatment:

Taylorstown WTP

Mayglass BH (alternative emergency supply, 10% approx.)

Network Storage: 4000m³ approx. (various structures)

Distribution Network: 350km approx.

Ancillaries: Secondary Disinfection, Booster Stations

Demand: 4500-6200m³/d (domestic, tourism, commercial, Power plant)

First Step

Implement SSOP's for Taylorstown WTP

- Raw Water Intake
- Coagulation Flocculation Clarification
- Rapid Gravity Filtration
- Primary Disinfection
- pH Correction
- Fluoride Dosing
- Water Treatment Residuals

Inputs by:

WCC Staff | WCC Management | IW Process Optimization

Focus

- Safe and Secure Supply from Catchment to Tap
- Standard Way of Working
- Optimise operator time
- **Provide guidance for new\relief operators.**
- Provide clarity & Improve communication
- Empower operator
- Assist operator during audits
- Assist operator troubleshooting
- Verification of plant operation
- Document areas for improvement (e.g. infrastructure, equipment, IT, process etc.)

SOP's applicable to Large & Small

Drinking Water Schemes: River, Borehole etc.

Raw Water, Treatment, Storage, Distribution.

Wastewater Schemes

Collection, Pumping, Treatment, Receiving Water.

Thank you for your time

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