



# Water Care Works Classification & Registration System

## Process Controller Classification System

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DWAF : Eastern Cape Region



water & forestry

Department:  
Water Affairs and Forestry  
REPUBLIC OF SOUTH AFRICA

# SEWAGE TREATMENT WORKS

- **National Water Act requires:**

- **WSA to register all sewage treatment works,**
  - **STW classified – specifies required operators,**
  - **Certificate Issued,**
  - **Certificate must be displayed at works.**
- **WSA or WSP to register all Operators,**
  - **Grade is determined by Qualification & Experience.**
- **WSA or WSP to notify DWAF of any changes,**
  - **STW upgrade,**
  - **Staff / operator changes.**






# SEWAGE TREATMENT WORKS

- National Water Act requires:
  - STW discharge to be licensed and to comply with set permit conditions, including quality limits,
  - WSA to monitor quality for:
    - Process evaluation,
    - Compliance monitoring monthly.
  - Report compliance monitoring 6 monthly.
- DWAF to do audit monitoring.

# SEWAGE TREATMENT WORKS

- **National Water Act requires:**
  - **Sewerage collection system, sewer pipes & pump stations - correctly managed to prevent pollution,**
  - **Pollution is an offence, Health Risk and affects the raw water of your water treatment works**
  - **Report incidents which causes / may cause pollution to DWAF.**
  - **Duty of care.**





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NATIONAL WATER ACT, 1998

**DRAFT REGULATIONS FOR THE REGISTRATION OF  
WATERWORKS AND PROCESS CONTROLLERS**

The Minister of Water Affairs and Forestry under section 26(c), (e) and (f) of the National Water Act, 1998 (Act No. 36 of 1998), intends to make the regulations in the Schedule.



## **SCHEDULE IV MINIMUM CLASS OF PROCESS CONTROLLER REQUIRED PER SHIFT, AND SUPERVISION, OPERATIONS AND MAINTENANCE SUPPORT SERVICES REQUIREMENTS AT A WATERWORK**

<b>WORKS CLASS</b>	<b>CLASS OF OPERATOR PER SHIFT</b>	<b>SUPERVISION*</b>	<b>OPERATIONS AND MAINTENANCE SUPPORT SERVICES REQUIREMENTS*</b>
E	Class I	Class V*	<p>THESE PERSONNEL MUST BE AVAILABLE AT ALL TIMES BUT MAY BE IN-HOUSE OR OUTSOURCED</p> <ul style="list-style-type: none"> <li>- electrician</li> <li>- fitter</li> <li>- instrumentation technician</li> </ul>
D	Class II	Class V*	
C	Class III	Class V*	
B	Class IV	Class V	
A	Class IV	Class V	

NB. Fluoridation – for any class works, minimum operator classification should be class III

### **NOTES FOR SCHEDULES IV**

\*does not have to be at the works at all times but must be available at all times. If the owner of a waterwork has no person of this class employed on that work, a contractor/consultant with the required qualifications as prescribed in Schedule III in respect of that particular class of persons, shall be appointed to visit the work weekly.

## SCHEDULE II

# REGISTRATION OF A WATERWORK USED FOR THE TREATMENT OF WASTE AND THE DISPOSAL OR RE-USE OF THE TREATED WASTE

Rating

Class of works Range of points	E <30	D 30 - 39	C 40 - 59	B 60 - 70	A >70
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Points to be awarded at the discretion of the Director – General in accordance with the following criteria:

			Maximum	
<b>Infrastructure</b>	<b>Design Capacity in kilolitres per day (kℓ/d)</b>	0 to 500.....	1	
		500 to 5 000.....	2	
		5 001 to 20 000.....	4	
		<b>Installed power (kilowatts of installed power to operate)</b>	20 001 to 50 000.....	6
			50 001 to 250 000.....	8
			>250 001.....	10
		0 – 5 kW.....	1	
		5 – 100 kW.....	3	
		101 –1000.....	5	
		>1000 kW.....	10	
<b>Quality of intake water</b>		Domestic.....	0	
		Conservancy/Night soil.....	1 – 5**	
		Industrial effluent.....	1 – 5**	
		Internal recycle eg filtrate/centrate, supernatant etc.....	2	
		Leachate.....	1 – 3**	

\*points scored according to complexity of process – needs to be motivated and 1 additional point is then added per motivation.

\*\* Points scored according to % of night soil, industrial effluent or leachate being discharged to the waterwork making the process more complex. This motivation must include the Chemical Oxygen Demand concentrations.



<b>Process parameters</b>	<b>Primary Treatment Secondary Treatment Tertiary Treatment Sludge Treatment Additional Factors</b>	Handraked screens.....	1
		Automatic screens.....	2
		Hand/mechanical grit removal.....	1
		Automatic grit removal.....	2
		Flow balancing.....	2
		Primary sedimentation.....	2
		Sludge fermentation.....	4
		Oxidation ponds.....	2
		Biodiscs.....	3
		Biofilters (Biof).....	4
		Activated sludge: full nitrification.....	6
		Activated sludge: partial denitrification.....	8
		Activated sludge: Biological Excess phosphate removal.....	10
		Chemical Addition.....	4
		Maturation ponds.....	1
		Reedbeds.....	1
		Sand filters.....	2
		Disinfection (eg. Chlorination, ammonium bromide, ozone and UV 1-2)*.....	1-3*
		Chemical De-chlorination.....	2
		De-salination/Membrane filters.....	4
		Treated water containing waste re-use for industrial purposes.....	2
		Treated water containing waste re-use for potable purposes (this section of the plant must then be registered in terms of Schedule I).....	Nil
		Anaerobic Digestion - <30 days retention.....	4
		- >30 days retention.....	2
		Mechanical or physical/chemical sludge treatment including thickening, stabilisation and/or dewatering.....	7
		Aerobic digestion.....	2
		Sludge drying beds/lagoons.....	1
Thermal sludge treatment.....	6		
Gas engines, incineration, boilers.....	1-3*		
On-site steam generation.....	3		
Partial to full plant automation.....	1-5*		
Odour control.....	1-3*		
Standby power.....	1-3*		
24 hour telemetry monitoring.....	3		
<b>Control Processes</b>	<b>Maintenance Lab services Administration Trade Effluent by-laws</b>	None by operators.....	0
		Basic maintenance by operators.....	1
		Specialised maintenance by operators.....	4
		Reading with instrumentation by operators.....	2
		Full lab service on site but not done by operators, although still a management function.....	3
		Chemical analyses done by operators.....	4
		<b>Table Not complete</b>	1



## SCHEDULE I

# REGISTRATION OF A WATERWORK USED FOR THE **TAKING, TREATMENT AND STORAGE OF WATER** AND DISPOSAL OF WASTE

Rating

Class of works Range of points	E <30	D 30 - 49	C 50 - 69	B 70 - 90	A >90
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Points to be awarded at the discretion of the Director-General in accordance with the following criteria:

			Maximum
<b>Population supplied</b>	Actual volume: _____ kℓ/d	Up to 5 000.....	1
		5 001 to 50 000.....	2
		50 001 to 250 000.....	3
		> 250 000.....	4
<b>Infrastructure</b>	<b>Design Capacity in kilolitres per day (kℓ/d)</b> <b>Versus peak day</b> <b>Final water storage capacity</b> <b>Installed power (kilowatts of installed power to operate)</b>	0 to 500.....	2
		501 to 2 500.....	4
		2 501 to 7 500.....	6
		7 501 to 25 000.....	8
		>25 000.....	10
		Design more than peak day use.....	0
		Design = peak day use.....	1
		Design < peak day use.....	3
		>60 hours during peak.....	0
		30 - 60 hours during peak.....	1
		<36 hours during peak.....	2
		0-5 kW.....	1
5 - 100 kW.....	3		
101 - 1000 kW.....	5		
>1000 kW.....	10		



<b>Operating Procedures</b>	<b>Raw water flow rate</b> <b>Raw water quality</b> <b>Chemical dosing</b>	No variation..... Little variation (<5%)..... Controlled variation with automatic adjustments..... Uncontrolled variation with automatic adjustments..... Controlled variation with manual adjustments..... Uncontrolled variation with manual adjustments..... No adjustments needed in operating procedures..... Seasonal adjustments needed in procedures..... Monthly adjustments needed in procedures..... Weekly adjustments needed in procedures..... Daily adjustments needed in procedures..... Hourly adjustments needed in procedures..... No chemicals added..... Disinfection chemical..... +1 flocculation chemical without pH control..... +2 flocculation chemicals without pH control..... +1 flocculation chemical with pH control..... +2 flocculation chemicals with pH control.....	0 1 2 3 4 5 0 1 2 3 4 5 0 2 4 6 8 10
<b>Operating Processes</b>	<b>Desludging</b> <b>Filter Backwash</b> <b>Settling Process</b> <b>Stabilisation</b> <b>Disinfection</b> <b>Recirculation</b> <b>Sludge handling</b>	Automatic desludging..... Manual desludging..... Automatic fixed schedule of desludging..... Manual fixed schedule of desludging..... Optimised desludging..... Automatic controlled by timer..... Automatic controlled by pressure..... Manual with fixed time schedule..... Manual with fixed pressure schedule..... Optimised filter backwash..... Uncontrolled process..... Controlled process (sludge blanket)..... pH correction with automatic dosing..... pH correction with manual dosing..... pH correction according to Langelier/Razner index..... pH correction according to Stasoft programme... Complete stabilisation with CO <sub>2</sub> ..... Uncontrolled with tablets.....	1 2 3 4 5 1 2 3 4 5 2 5 1 2 3 4 5 1 2



<p><b>Control Processes</b></p>	<p><b>Water Losses</b>  <b>Water Management</b>  <b>Pumping</b>  <b>Level</b>  <b>Maintenance</b>  <b>Lab services</b>  <b>Administration</b></p>	<p>On works only..... 2  Different reservoirs..... 2  Different pressure zones..... 4  Gravitation only..... 2  Gravitation and pumping..... 4  Raw or final pumping..... 4  Raw, Final and other pumping..... 6  Indicators..... 2  Telemetric..... 4  None by operators..... 0  Basic maintenance by operators..... 1  Specialised maintenance by operators..... 2  Reading with instrumentation by operators..... 2  Full lab service on site but not done by operators, although still a management function.. 3  Chemical analyses done by operators..... 4  Jar tests to maintain optimum dosing by operators (more than 2x daily)..... 5  Record readings..... 1  Calculate daily flow and stock taking..... 2  Calculate dosing and generate reports..... 4  Work on computer (not just check screen)..... 5</p>	<p>2 2 4 2 4 4 6 2 4 0 1 2 2 3 4 5 1 2 4 5</p>
<p><b>Special Processes</b></p>	<p><b>Deminerilisation</b>  <b>Fluoridation</b>  <b>Reverse Osmosis</b>  <b>Activated carbon</b>  <b>Softening</b></p>	<p>Mechanical – Air..... 2  Chemical*..... 1 – 5*  ..... 5  ..... 5  ..... 5  ..... 5</p>	<p>2 1 – 5* 5 5 5 5</p>

\* need to motivate number of points claimed eg. combination of chemicals.

**SCHEDULE III****WATERWORK PROCESS CONTROLLER REGISTRATION**

This Schedule must be read in conjunction with the Qualifications registered with the South African Qualifications Authority on the National Qualifications Framework. The qualifications include Water and Wastewater Process operations and control and industrial water treatment support and control operations.

EDUCATIONAL REQUIREMENTS	Years appropriate experience						
	CLASS Trainee	I	II	III	IV	V	VI
Existing qualifications prior to the NQF							
▪Std. 6	0	-	-	-	-	-	-
▪Std. 6 plus Maintenance Workers Certificate	0	4	-	-	-	-	-
▪Std. 7 plus Maintenance Workers Certificate	0	3	-	-	-	-	-
▪Std. 8 (or NTC I) plus Maintenance Workers Certificate ▪Std. 8 (or NTC I) plus Water and Wastewater Treatment practice NI	0	2	5	-	-	-	-
▪NTC I in Water and Wastewater Treatment practice	0	1.5	4	-	-	-	-
▪Std. 8 (or NTC I) plus Operators certificate	0	1	3	9	-	-	-
▪Std. 9 (or NTC II) plus Operators certificate ▪NTC II in Water and Wastewater Treatment practice	0	0.5	2	7	15	-	-
▪Matric (or NTC III) plus Operators certificate ▪Matric (or NTC III) plus Water Treatment practice N3 ▪Matric (or NTC III) plus wastewater Treatment practice N3 ▪NTC III in Water Treatment practice ▪NTC III in wastewater Treatment practice		0	0.5	3	8	15	-
▪National Diploma or National Technical Diploma or NTC VI or 3 year BSc (all in appropriate field)				0	2	6	-
▪Higher National Diploma or 4 year BSc (both in appropriate field)					0	4	15
▪Professional Engineer (Act 81 of 1968) in appropriate field; Natural Scientist (Act 55 of 1982) in appropriate field; Corporate member of IWPC (now WISA)					0	3	12
<b>National Qualifications Framework (NQF) qualifications</b>							
▪Unit standard on the water cycle from Certificate in Wastewater or Water Process Operations (NQF2)	0	-	-	-	-	-	-

Table Not complete



**DEPARTMENT: WATER AFFAIRS AND FORESTRY  
DIRECTORATE: WATER QUALITY MANAGEMENT**

**APPLICATION FOR CLASSIFICATION OF WATER CARE WORKS**

Please give the following information as fully as possible and send the completed form to:  
The Director-General, Department: Water Affairs and Forestry, Private Bag X313, Pretoria, 0001.

**NAME OF OWNER** (as required on certificate): .....

**Contact Person:** .....

**Postal Address of Owner:** .....

**Code:** .....

**Tel.** (code and number): ..... **Fax.** (code and number): .....

**E-mail** (if available): .....

**File number of owner** (if known – first 10 digits on bottom left corner of certificate):

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**NAME OF WATER CARE WORKS** (as required on certificate): .....

**Potable:**

**Sewage:**

**Contact Person at Works:** .....

**Tel.** (code and number): ..... **Fax.** (code and number): .....

**E-mail** (if available): .....

**Municipality:** .....

**District Council:** .....

**Magisterial District:** .....

**Latitude:**       S

**Longitude:**       E

**Y-Coordinates:** \_\_\_\_\_

**X-Coordinates:** \_\_\_\_\_

**Lo:** \_\_\_\_\_

**New Classification:**

**Reclassification:**

**Reasons for reclassification:** (continue on separate page if necessary) .....

.....  
 .....  
 .....  
 .....

**Signed:** ..... **Designation:** .....

**Date:** .....

**CLASSIFICATION OF WATER CARE WORKS USED FOR THE PURIFICATION OF TREATMENT OF WATER FOR HUMAN CONSUMPTION OF FOOD PROCESSING [In terms of the regulations made under sections 12A and 26 of the Water Act, 1956 (Act 54 of 1956)].**

Name of owner ..... Name of works  
 .....

Please tick the applicable block

Population supplied.....	0 to 1 000 .....	<input type="checkbox"/>	For office use only 38 39
	1 001 to 2 000 .....	<input type="checkbox"/>	
	2 001 to 5 000 .....	<input type="checkbox"/>	
	5 001 to 15 000 .....	<input type="checkbox"/>	
	15 001 to 50 000 .....	<input type="checkbox"/>	
	50 001 and over .....	<input type="checkbox"/>	
Quality of intake water.....	Little variation .....	<input type="checkbox"/>	40 41
	Seasonal variation .....	<input type="checkbox"/>	
	Monthly variation .....	<input type="checkbox"/>	
	Daily variation .....	<input type="checkbox"/>	
	Hourly variation .....	<input type="checkbox"/>	
Process.....	(a) = Pumping and/or chlorination.....	<input type="checkbox"/>	42 43
	(b) = (a) plus filtration.....	<input type="checkbox"/>	
	(c) = (b) plus flocculation and sedimentation of clarification.....	<input type="checkbox"/>	
	(d) = (c) plus adjustments*.....	<input type="checkbox"/>	
	(e) = (a) or (b) or (c) or (d) plus special treatment†.....	<input type="checkbox"/>	
Designed capacity..... (cubic metres per day)	0 to 500 .....	<input type="checkbox"/>	44
	501 to 2 500 .....	<input type="checkbox"/>	
	2 501 to 7 500 .....	<input type="checkbox"/>	
	7 501 to 25 000 .....	<input type="checkbox"/>	
	25 001 and over .....	<input type="checkbox"/>	
			Coded by
			Date

\* Adjustments: e.g., removal of CO<sub>2</sub>, Ph, stability of corrosion control and disinfection.

† Special treatment: e.g., reverse osmosis, activated carbon treatment, softening, demineralising and fluoridation.

Signed ..... Position ..... Date  
 .....

FOR OFFICE USE ONLY	Coded by
	Date

**CLASSIFICATION OF WATER CARE WORKS USED FOR THE PURIFICATION, TREATMENT OR DISPOSAL OF EFFLUENT OR SEWAGE [In terms of the regulations made under sections 12A and 26 of the Water Act, 1956 (Act 54 of 1956)].**

Name of owner ..... Name of works .....

Please tick the applicable block

Designed capacity (megalitres per day)	Up to 1 .....	<input type="checkbox"/>	For office use only  38 39
	1+ to 5 .....	<input type="checkbox"/>	
	5+ to 20 .....	<input type="checkbox"/>	
	20+ to 100 .....	<input type="checkbox"/>	
	Over 100 .....	<input type="checkbox"/>	
Concentration of raw effluent or sewage as COD (Chemical Oxygen Demand)	Less than 700mg/l .....	<input type="checkbox"/>	40
	700mg/l and over .....	<input type="checkbox"/>	
Process	Preliminary treatment with more than one mechanical item.....	<input type="checkbox"/>	41
	Preliminary sedimentation.....	<input type="checkbox"/>	42
	Anaerobic digestion.....	<input type="checkbox"/>	43
	Sludge drying beds.....	<input type="checkbox"/>	44
	Gas utilisation (e.g. gasholders, boiler, etc.).....	<input type="checkbox"/>	45
	Oxidation ponds (not for tertiary use).....	<input type="checkbox"/>	46
	Biofilters (Boif) or biodiscs.....	<input type="checkbox"/>	47
	Activated sludge (AS) in any form.....	<input type="checkbox"/>	48
	Tertiary treatment (e.g. sand filtration).....	<input type="checkbox"/>	49
	Maturation ponds.....	<input type="checkbox"/>	50
	Chlorination.....	<input type="checkbox"/>	51
	Mechanical or phys./chem. sludge treatment including stabilisation and/or dewatering..	<input type="checkbox"/>	52
Nutrient removal (over and above AS or Biof).....	<input type="checkbox"/>	53	
Complicating factors (e.g. gas engines, air filtration, etc.).....	<input type="checkbox"/>	54	
Sensitivity of water environment into which treated or purified effluent is discharged	LOW, e.g. ocean of evaporation pond.....	<input type="checkbox"/>	55
	MEDIUM, e.g. GENERAL STANDARD or ocean discharge near swimming beach.....	<input type="checkbox"/>	
	HIGH, e.g. SPECIAL STANDARD or trout stream of downstream potable water supply.....	<input type="checkbox"/>	
State any complicating or simplifying factors (block capitals please)	.....	<input type="checkbox"/>	Coded by.....
	.....		Date.....

Signed ..... Position ..... Date .....

FOR OFFICE USE ONLY	Coded by:.....
	Date:.....

# Operator Application Form

OPERATOR No.  For Office Use

## CURRENT OPERATOR INFORMATION

**SURNAME** : \_\_\_\_\_ **FIRST NAMES** : \_\_\_\_\_

**ID NUMBER (NEW)** : \_\_\_\_\_ (attach copy) **ID NUMBER (OLD)** : \_\_\_\_\_

**CURRENT OWNER of works** : \_\_\_\_\_ (As appears on certificate)

**CONTACT NAME for above** : \_\_\_\_\_ **EMAIL NO. if available** : \_\_\_\_\_

**TEL NO. (of Contact name)** : \_\_\_\_\_ **FAX NO. (of Contact name)** : \_\_\_\_\_

Name of Works – Sewage Treatment Works (STW) or Water Treatment Works (WTW)	Works Class	Designations (See Table Below)			Years worked at works			Class	All Certificates of Qualifications obtained including In-House Training Relevant to Operators at Water Care Works (Attach certified copies)
		No.	Date From	Date To	Date From	Date To			
<b>TOTAL YEARS RELEVANT EXPERIENCE</b>	<b>POTABLE WATER CARE WORKS</b> :								
	<b>SEWAGE WATER CARE WORKS</b> :								

Signed \_\_\_\_\_ Position \_\_\_\_\_ Date \_\_\_\_\_  
Must be signature of Manager/Supervisor Manager/Supervisor

<b>Type of designation</b>	<b>Inspector</b>	<b>1</b>	<b>Operator in Charge</b>	<b>2</b>	<b>Operator</b>	<b>3</b>	<b>Other</b> _____	<b>4</b>
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Thank You