

E A ERNST

**OCCUPATIONAL COMPETENCIES FOR THE OCCUPATION
OF WATERCARE OPERATOR & WATERCARE MANAGER**

**Report to the
WATER RESEARCH COMMISSION**

by

MTI MANPOWER CONSULTING SERVICES (PTY) LTD

WRC Report No KV 55/94

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**OCCUPATIONAL COMPETENCIES FOR THE OCCUPATION OF
WATERCARE OPERATOR & WATERCARE MANAGER**

Prepared for the

WATER RESEARCH COMMISSION

by

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INTRODUCTION

This working document contains two sets of tables. Those on pages 3-41 are for the occupation of "Watercare Operator", while those on pages 42-63 are for the occupation of "Watercare Manager". Each table displays a series of *occupational competencies* for a *functional task* of the particular occupation. The functional tasks of two occupations were originally identified through a series of workshops held with selected **subject matter experts (SMEs)** from organisations involved in the processing and management of potable and waste water in South Africa. The outcome of these workshops was documented in WRC Report No KV 35/92.

The series of occupational competencies identified for each of the functional tasks were obtained through a number of structured interviews with a wide selection of SMEs. The names of these participants and their respective organisations are listed on page 1 of this working document as a gesture of recognition but also as a source of reference. Each table further shows the responses of a survey that was conducted to establish the level in the occupational structure where each of the occupational competencies should be performed. This information is vital for defining training target groups, the contents of training courses for each target group, where and how training should be provided as well as which method of training will be best suited. The responses were obtained from a representative cross-section of clients and stakeholders. The names of these participants and their respective organisations have been recorded separately on page 2 as a gesture of recognition for their participation and as a source of reference for their contribution.

The first (loose standing) number recorded in each column indicates the total number of responses obtained from employer organisations and the number recorded in brackets i.e. "()" indicates the total number of responses obtained from traditional providers of watercare education/training. These providers include most of the Technical Colleges and Technikons where watercare education/training are presently being conducted.

The purpose of this working document is to provide feedback to all the parties who have a vested interest in the future development of WaterCare Operators and Managers. In this regard, constructed feedback will be appreciated. The information contained in the document will also be used as the primary source of reference for curriculum planning - the next step in the process of developing *Competency-based education and training programmes for the development of Watercare Operators and Managers.*

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**LEGEND FOR INTERPRETING OCCUPATION
LEVELS OF WATERCARE OPERATORS**

| OCCUPATION LEVEL | OCCUPATION DESCRIPTION | FORMAL QUALIFICATION |
|------------------|---|----------------------|
| LEVEL 6 | Superintendent Supervisor | T3/N6 |
| LEVEL 5 | Principal Process operator (Process controller) | +N5 |
| | Senior Process Operator (Shift Supervisor) | +N4 |
| LEVEL 4 | Process Operator (Unit Operator) | +N3 |
| LEVEL 3 | Trainee | Std 8 - 10 |
| LEVEL 2 | Plant Attendant (Shift Attendant) | Std 6-8 |
| LEVEL 1 | General Worker | Functional Literacy |

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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A 01: Operate Abstraction System

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Commission Abstraction Plant manually | | 4 | 2 (1) | 8 (1) | 3 (2) | 6 |
| Shut-off Abstraction Plant manually | | 4 | 3 (1) | 10 (2) | 1 (1) | 1 |
| Commission Abstraction Plant automatically | | 1 | 6 (1) | 10 (1) | 2 (2) | 4 |
| Shut-off Abstraction Plant automatically | | 1 | 6 (1) | 9 (2) | 1 (1) | 1 |
| Regulate flow from source to meet fluctuating demands | | | 3 (1) | 12 (4) | 1 | 1 |
| Adjust draw-off levels | | (1) | 2 | 11 (2) | 3 (1) | 1 |
| Clear Water Hammer | | 1 (1) | 2 | 9 (3) | 2 (1) | 1 |
| Dose chemicals | | 1 | 4 | 9 (4) | 4 | 1 |
| Stabilise water | | 1 | 4 (1) | 8 (3) | 4 (1) | 1 |
| Chlorinate water | | 1 | 5 (1) | 10 (3) | 2 (1) | 1 |
| Aerate water | | (1) | 6 | 9 (2) | 1 | |
| Determine draw-off levels | | | 2 | 5 (2) | 8 (3) | 2 |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 4 | 1 | 3 | 3 (2) | 2 (1) |
| Demonstrate use of appropriate safety equipment | 4 | | 1 | 1 (1) | 4 (2) | 2 |
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OCCUPATIONAL COMPETENCIES FOR WATER CARE OPERATOR

TASK A02.1 : Operate Mn and Fe Removal Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Aerate water | | 1 (1) | 3 (1) | 9 (1) | 1 (1) | 1 |
| Chlorinate water | | | 3 (1) | 10 (2) | 1 (1) | 1 |
| Dose Chlorine dioxide | 1 | | 3 | 9 (3) | 3 (1) | 1 |
| Optimise Chlorine dioxide generator | | | | 8 (1) | 6 (1) | 2 (1) |
| Dose permanganate | | | 2 (1) | 11 (2) | 2 | 1 (1) |
| Manipulate pH for Fe ³⁺ removal | | | | 9 (2) | 6 (3) | 1 |
| Determine dosage requirements | | | | 6 (1) | 7 (1) | 3 (1) |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 1 | 3 | 2 (2) | |
| Demonstrate use of appropriate safety equipment | 1 | | 1 (1) | 2 (1) | 4 (2) | |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A02.2 : Operate Screening Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Clean screen manually | 13 (3) | 3 (1) | 1 | 1 | | |
| Dispose screenings | 13 (3) | 1 | 1 (1) | 1 | | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 5 | 2 | (2) | 2 (1) | | 1 |
| Demonstrate use of appropriate safety equipment | 3 | 2 | 2 (2) | 2 (1) | | 1 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A03 : Operate Coagulation and Flocculation Processes

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Determine dosing rates using the Jar Test | | | 2 | 9 (3) | 6 (1) | |
| Determine dosing rates using Zeta meter | | | 1 (1) | 9 (1) | 6 (2) | |
| Regulate dosing manually | | 2 | 3 (3) | 10 (2) | 2 | |
| Regulate dosing automated | | 2 | 2 (2) | 11 (1) | 1 (1) | |
| Monitor turbidity and / or colour | | 2 | 5 (2) | 7 (2) | 2 | |
| | | | | | | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 2 | | 4 (1) | 1 (2) | 1 |
| Demonstrate use of appropriate safety equipment | 2 | | 1 | 3 (2) | 3 (1) | 1 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A04 : Operate Clarification Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Draw off sludge manually | 1 (1) | 7 (1) | 4 (2) | 5 | | |
| Draw off sludge automated | | 3 (1) | 8 (2) | 5 (1) | | |
| Regulate flow rate through clarifier | | | 3 | 13 (4) | | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 3 | | 2 (1) | 2 | 1 |
| Demonstrate use of appropriate safety equipment | 2 | | 1 | 4 (1) | 2 | 1 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A05.1 : Operate Sludge Thickening Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Operate centrifuges | | 1 | 5 (1) | 10 (3) | 1 | |
| Operate tubular filter press | | 2 | 3 (1) | 10 (3) | 1 | |
| Operate vacuum filtration unit | | 1 | 4 (1) | 9 (3) | 1 | |
| Operate drying beds | | 4 | 7 (2) | 3 (2) | 1 | |
| Operate drum filtration unit | | 1 | 5 (1) | 8 (3) | 1 | |
| Operate pumps | | 3 (2) | 5 | 8 (2) | 1 | |
| Analyse sludge thickness | | | 4 | 6 | 5 (3) | |
| Adjust valves | | 3 (1) | 4 | 6 (2) | 1 | |
| Assess sludge thickness | | | 4 | 8 (1) | 3 (4) | |
| Monitor feed to recycle ratio | | 1 (1) | 5 | 6 (2) | 2 (2) | |
| Desludge sedimentation tank | 1 | 7 | 4 (2) | 2 (2) | 1 | |
| Desludge thickener | | 6 | 5 (2) | 1 (2) | 1 | |
| Manage stable sludge production | | | 1 | 5 | 6 (4) | 1 (1) |
| Manage chemical recovery | | | 1 | 3 | 8 (3) | 2 (2) |
| Manage waste disposal | | | 1 | 3 (1) | 9 (3) | 2 |
| Control abrasion | | | 2 | 3 (2) | 7 (2) | 2 |
| Control corrosion | | | 1 | 4 (2) | 5 (1) | 2 |
| | | | | | | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | | 5 (1) | 2 (1) | (1) |
| Demonstrate use of appropriate safety equipment | 2 | | 1 | 1 | 4 (3) | |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A05.2 : Operate Filtration Process (Same as Task B05.1)

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Operate filters | | 6 | 3 (2) | 8 (2) | 1 | |
| Clean filter | (1) | 8 | 4 (1) | 5 (2) | 1 | |
| Measure turbidity, head loss and flow | | 1 | 7 | 5 (3) | 3 (1) | |
| Operate microscreens | 1 | 2 (1) | 5 (1) | 7 (1) | (1) | |
| Clean microscreens | 2 (2) | 3 (1) | 6 | 3 (2) | | |
| | | | | | | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 2 | 1 | 3 (1) | 1 (1) | |
| Demonstrate use of appropriate safety equipment | 2 | 1 | 1 | 3 (3) | 1 (1) | |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A06.1 : Operate Sludge Dewatering Process (Non-biological Sludge) (Same as Task B04.2)

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Measure flow | | 1 | 8 (2) | 3 (2) | 4 | |
| Analyses total solids concentration | | | 4 | 5 (3) | 6 (2) | (1) |
| Calculate mass load of sludge (different for Anaerobic and Waste) | | | 1 | 9 (1) | 5 (2) | (1) |
| Calculate dosage of Polyelectrolyte | | | 2 | 10 (2) | 4 (2) | |
| Prepare chemicals for dosing | 1 | 2 | 2 (1) | 7 (3) | 1 (1) | |
| Control chemical dosing rate | 1 | 1 | 3 (1) | 10 (3) | 2 | |
| Operate mechanical dewatering equipment (centrifuges, vacuum filters, belt press, etc.) | | 1 | 4 (2) | 8 (2) | 2 | |
| Analyse sludge cake for Total Solids an calculate % water of cake | | | 2 | 7 (2) | 5 (3) | |
| Check liquid stream clarity (visual and analytical) | | 2 | 5 (1) | 3 (2) | 5 (2) | |
| Control sludge dewatering process (interpretation and remedial action) | | | 3 | 4 (1) | 7 (4) | 1 (1) |
| Optimise (increase or decrease) Polyelectrolyte dosing rate | | | 2 | 8 (1) | 5 (2) | 1 (1) |
| Remediate mass load of sludge | | | 4 | 4 (2) | 4 (2) | 1 |
| Manage disposal of liquid stream | | 2 | 2 | 6 (2) | 4 (2) | 2 |
| Prepare drying bed surface | 5 (2) | 4 | 3 (1) | 1 | 1 | |
| Record sludge volume disposed to bed and date | 1 (1) | 6 | 4 (1) | 4 (2) | 1 | |
| Fill bed to predetermined level | (2) | 8 | 4 (2) | 3 | 1 | |
| Decant surface water | (2) | 10 (1) | 5 (2) | 2 | 1 | |
| Record meteorological data (temperature, rainfall, etc.) | | 4 (1) | 5 | 5 (3) | 1 | |
| Perform on-line maintenance on plant | | 1 | 4 (2) | 9 (1) | 2 (2) | |
| Control drying bed conditions (fly-nuisance, odours and weeds) | 3 | 3 (1) | 3 (1) | 3 (2) | 4 | |
| Lift and remove sludge cake | 6 (3) | 5 | 3 (1) | 1 | | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 3 | 1 | 1 | 1 (1) | 2 | (2) |
| Demonstrate use of appropriate safety equipment | 2 | | 1 | 3 (2) | 3 | (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A06.2 : Operate Disinfection Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Prepare disinfectant | | 2 | 5 (1) | 8 (3) | 2 | |
| Regulate application of disinfectant | | | 2 (1) | 13 (3) | 2 | 1 |
| Determine disinfectant residuals | | | 1 (1) | 12 (3) | 4 | 1 |
| Perform emergency drills | 1 | 1 | 1 | 5 | 5 (4) | 3 |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | | 2 | 3 (2) | 1 (1) |
| Demonstrate use of appropriate safety equipment | 2 | | 1 | 2 (2) | 3 (1) | 2 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A06.3 : Operate Demineralisation Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Operate Cation Unit manually | | 1 | 6 (1) | 3 (2) | 2 (1) | |
| Operate Cation Unit automatically | | 1 | 3 (1) | 6 (2) | 2 (1) | |
| Shut-down Cation Unit manually | | 1 | 6 (1) | 3 (2) | 2 (1) | 1 |
| Shut-down Cation Unit automatically | | 1 | 3 (1) | 6 (2) | 2 (2) | 1 |
| Regenerate Cation Unit manually | | 1 | 5 | 5 (2) | 2 (2) | 1 |
| Regenerate Cation Unit automatically | | 1 | 3 | 7 (3) | 2 (1) | 1 |
| Operate Degassifier manually | | 1 | 6 | 3 (3) | 2 (1) | 1 |
| Operate Degassifier automatically | | 1 | 3 (1) | 6 (2) | 2 (1) | 1 |
| Operate Anion Unit manually | | 1 | 6 (1) | 4 (2) | 2 (1) | 1 |
| Operate Anion Unit automatically | | 1 | 3 (1) | 6 (2) | 2 (1) | 1 |
| Shut-down Anion Unit manually | | 1 | 6 (1) | 3 (2) | 2 (1) | 1 |
| Shut-down Anion Unit automatically | | 1 | 3 (1) | 6 (1) | 2 (2) | 1 |
| Operate Regeneration Unit manually | | | 6 | 4 (3) | 2 (1) | 1 |
| Operate Regeneration Unit automatically | | | 3 (1) | 7 (3) | 2 | 1 |
| Operate Mixed Bed Unit manually | | 1 | 6 (2) | 3 (2) | 2 | 1 |
| Operate Mixed Bed Unit automatically | | 2 | 3 (2) | 6 (2) | 2 | 1 |
| Shut-down Mixed Bed Unit manually | | 2 | 5 (2) | 3 (2) | 2 | 1 |
| Shut-down Mixed Bed Unit automatically | | 2 | 2 (2) | 6 (1) | 2 | 1 |
| Record plant operating data | | 1 | 5 (2) | 5 (2) | 2 (1) | 1 (1) |
| Monitor plant performance during operation | | | 2 | 9 (1) | 2 (2) | 1 |
| Monitor plant performance during regeneration | | | 2 | 8 (1) | 2 (3) | 1 |
| Operate Effluent Neutralisation System | | | 5 (1) | 6 (1) | 2 (3) | |
| Operate Bulk Chemical Off-loading System (See Task B04 1) | | 2 | | 7 (3) | 1 (1) | 1 (1) |
| Control stock of chemicals (See Task B04 1) | | | 1 | 4 (3) | 4 (1) | 1 (1) |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | | 1 | 3 (2) | (1) |
| Demonstrate use of appropriate safety equipment | 2 | | 1 | (1) | 4 (2) | 1 |

OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A07.1 : Operate Sludge Disposal Process (Same as Task B05.2)

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Recognise stable and unstable sludges | | (1) | 5 (1) | 9 (2) | 2 | 1 |
| Operate land disposal of sludge on sacrificial land | (1) | 2 (1) | 2 (1) | 10 (2) | 2 | |
| Operate land disposal of sludge on agricultural land | (1) | 2 | 2 | 10 (3) | 1 | |
| Compost sludge | (1) | 2 (1) | 4 | 7 (2) | 1 | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Explain legal and other guidelines for sludge disposal | | | 1 | 1 (1) | 3 (2) | 5 (1) |
| Explain health aspects of sludge disposal | | | 1 | 1 (1) | 3 (1) | 5 (1) |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | | 4 (1) | 1 (1) | (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 1 | 3 (2) | 3 | (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A07.2 : Operate Stabilisation Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Perform Alkalinity analysis | | | 4 | 8 (2) | 4 (2) | 1 |
| Perform Conductivity analysis | | | 7 | 7 (2) | 2 (2) | 1 |
| Perform pH analysis | | | 8 (1) | 8 (2) | 2 (1) | |
| Calibrate pH meters | | | 2 (1) | 8 (2) | 5 (1) | |
| Operate lime feeders | | 3 (1) | 4 (1) | 9 (3) | 1 | |
| Determine dosing rates using the Jar Test (See A03) | | | 2 | 9 (3) | 6 (1) | |
| Determine dosing rates using a Zeta meter (See A03) | | | 2 (1) | 7 (1) | 6 (2) | |
| Regulate dosing manually (See A03) | | 2 | 5 (2) | 8 (2) | 2 | |
| Regulate dosing automated (See A03) | | 2 | 3 (2) | 10 (2) | 1 | |
| Operate coke stoves for CO ² supply | 1 (1) | 1 (2) | 2 | 7 (2) | | |
| Operate lime kiln for CO ² supply | (1) | 1 (2) | 2 | 8 (2) | 1 | |
| Calculate lime requirements | | | 1 | 7 (4) | 6 (1) | 2 |
| Calculate CO ² requirements | | | 1 | 6 (4) | 6 (1) | 2 |
| Record and retrieve data on chemical usage | | | 1 | 10 (2) | 5 (2) | 1 |
| Interpret alkalinity results | | | 1 | 5 (2) | 9 (1) | 3 (1) |
| Interpret pH results | | | 1 | 6 (2) | 7 (2) | 3 |
| Operate water hardening process | | 1 | 1 (1) | 11 (2) | 2 (1) | |
| Operate water softening process | | 1 | 2 | 10 (3) | 2 (1) | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 3 | 1 | | 2 | 2 (2) | 1 |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 1 | 1 (2) | 4 (2) | 2 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK A08 : Operate Bulk Distribution Process

DUTY A : OPERATING POTABLE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Prepare bulk distribution system for receiving product | | 1 | 1 | 6 | 5 (1) | 3 (3) |
| Regulate flow through bulk distribution system | | 1 (1) | 2 | 6 | 5 | 1 (3) |
| Maintain quality of water in bulk distribution system | | | 1 | 5 (1) | 7 (1) | 1 (2) |
| Record sales volume (Calculate and record gains and losses) | | | | 3 (1) | 9 (2) | 3 (1) |
| Control taste, odour and invertebrate contamination | | | 1 (1) | 4 (2) | 7 (1) | 2 |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | | 3 | 2 (2) | 1 (2) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 1 | 2 (1) | 3 (2) | 1 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B01.1 : Operate Preliminary Treatment Processes

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Rake screens manually | 19 (3) | 2 (1) | 2 | | | |
| Clean working area (housekeeping) | 18 (3) | 2 (1) | 1 | | | |
| Operate mechanical screens manually | 4 (1) | 13 (2) | 2 (1) | 2 | | |
| Operate mechanical screens automated | 5 | 13 (3) | 2 | 2 (1) | | |
| Remove screenings manually using wheelbarrow | 18 (3) | 4 (1) | 2 | | | |
| Remove screenings automated using conveyor | 9 | 10 (2) | 1 (1) | 1 (1) | | |
| Operate screening press (Screw Press) | 2 | 15 (2) | 2 (1) | 2 (1) | | |
| Operate screening press (Hydraulic Ram) | 2 | 15 (2) | 2 (1) | 2 (1) | | |
| Operate penstocks | 2 (2) | 12 (1) | 4 (1) | 3 | | |
| Identify and report malfunctioning equipment | 3 | 7 (2) | 6 | 6 (2) | | |
| Dispose screenings | 12 (3) | 8 | 4 (1) | 4 | | |
| Record flow rates | | 12 | 9 (2) | 5 (2) | 1 | |
| Record volume of screenings removed | 1 | 8 | 8 (2) | 6 (2) | 1 | |
| Plan and organise disposal of screenings | | 2 | 4 | 12 (3) | 5 (1) | |
| Recognise and report irregularities of inflow | | 4 (1) | 5 (1) | 10 (2) | 1 | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 1 | 4 (2) | 6 | 3 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 2 | 2 | 4 (3) | 7 | 3 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B01.1.2 : Operate Degritting Processes

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Operate channel grit removal system | 7 | 10 (1) | 2 (2) | 1 (1) | | |
| Operate VORTEX grit removal system | 3 | 10 (1) | 4 (2) | 2 (1) | | |
| Operate spiral flow grit removal system | 3 | 10 (1) | 4 (2) | 2 (1) | | |
| Operate grit classifier system | | 14 | 4 (1) | 3 (3) | | |
| Identify and report malfunctioning equipment | | 7 (1) | 8 (1) | 16 (2) | 1 | |
| Record volume of grit | 2 | 6 | 9 (3) | 3 (1) | 1 | |
| Dispose of grit | 7 (1) | 7 (1) | 1 | 2 (1) | | |
| Plan and organise disposal of grit | 2 | 1 | 5 | 13 (2) | 4 (2) | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 2 | 3 (1) | 6 (2) | 3 |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 4 (3) | 7 | 3 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B01.2 : Operate Balancing Processes

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Control inflow and outflow | | 1 | 3 | 16 (2) | 2 (2) | |
| Operate mixers | | 5 | 4 | 13 (2) | 2 (2) | |
| Regulate flow and load (COD) | | | 1 | 13 (1) | 10 (3) | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 1 | 3 (1) | 7 (2) | 3 |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 2 (3) | 9 | 3 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B02.1 : Operate Pond Process

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Monitor inflow | 1 | 6 (1) | 8 (2) | 6 (1) | | |
| Service screen (See Task B01 1) | 6 (2) | 5 | 2 | 5 (2) | | |
| Service grit channels (See Task B01 1.2) | 7 (2) | 7 | 2 | 3 (2) | | |
| Maintain structure of ponds system | 4 (1) | 9 | 1 (1) | 3 (2) | 1 | 1 |
| Housekeep ponds system | 6 (2) | 9 | 2 (1) | 2 (1) | 1 | |
| Housekeep surrounding terrain | 9 (2) | 8 | 1 (2) | 3 | | |
| Disinfect effluent (See Task B06) | | 2 (1) | 8 (2) | 8 (1) | 1 (1) | |
| Operate recirculation system | | 4 | 9 (1) | 5 (3) | | |
| Operate system with more than one pond | | 4 (1) | 7 (1) | 7 (2) | 1 | |
| Operate system with more than one module | | 3 | 9 (2) | 7 (1) | 1 | |
| Operate aerators (See Task D02 and Task E01) | | 3 | 6 (1) | 10 (2) | 2 | |
| Operate pumps and valves (See Task D02 and Task E01) | | 2 (1) | 6 (1) | 11 (2) | 1 | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | 2 | 4 (1) | 5 | 2 |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 3 | 4 (2) | 6 (1) | 2 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B02.3 : Operate Sludge Thickening Process

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Operate centrifuges | | 1 | 3 (1) | 15 (3) | 1 | |
| Operate tubular filter press | | 1 | 3 (1) | 13 (3) | 1 | |
| Operate D A F. unit | | | 4 | 14 (4) | 1 | |
| Operate vacuum filtration unit | | 1 | 3 | 13 (4) | 1 | |
| Operate drying beds | | 11 | 8 (3) | 4 (1) | | |
| Operate drum filtration unit | | 2 | 5 (1) | 11 (3) | | |
| Operate compressors | | 3 (1) | 11 (1) | 9 (2) | | |
| Operate pumps | | 4 (1) | 9 (1) | 9 (2) | | |
| Operate scraper mechanism | | 5 (1) | 10 | 7 (3) | | |
| Operate saturator | | 3 | 8 (1) | 10 (3) | | |
| Analyse sludge thickness | | 1 | 5 | 11 (2) | 5 (2) | 1 |
| Adjust valves | | 4 (1) | 5 | 13 (3) | 1 | |
| Assess sludge thickness | | 1 | 4 | 14 (2) | 3 (2) | |
| Monitor feed to recycle ratio | | 1 | 3 (1) | 14 (1) | 3 (2) | |
| Measure float thickness | | 1 | 8 | 9 (3) | 3 (1) | |
| Desludge sedimentation tank | | 10 (1) | 4 | 5 (2) | (1) | |
| Desludge thickener | | 9 (1) | 4 | 5 (3) | 1 | |
| Manage stable sludge production | | | 2 | 10 (2) | 8 (3) | 2 (1) |
| Manage chemical recovery | | | | 7 (2) | 11 (3) | 2 (1) |
| Manage waste disposal | | | 1 | 9 (2) | 8 (3) | 3 (1) |
| Control abrasion | | | 1 | 5 (1) | 10 (3) | 2 |
| Control corrosion | | 1 | | 6 (1) | 10 (3) | 2 |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 1 | 3 (1) | 5 (1) | 4 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 1 | 1 (2) | 9 (1) | 4 |

OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B03.1 : Operate Activated Sludge Process

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Regulate Dissolved Oxygen (DO) concentration | | 1 | 2 | 14 (1) | 7 (2) | 3 |
| Regulate Mixed Liquor Suspended Solids (MLSS) concentration | | 1 | 1 | 13 (1) | 10 (2) | |
| Regulate Return Activated Sludge (RAS) | | 1 (1) | 2 | 14 (1) | 8 (2) | |
| Identify and report mechanical and electrical faults | | 2 | 6 | 14 (4) | 4 | |
| Record DO | | 3 | 9 | 11 (4) | 3 | |
| Record MLSS | | 3 | 10 | 8 (4) | 2 | |
| Record Aerator's commissioned | | 5 | 11 | 6 (3) | 2 (1) | |
| Record power consumption | | 5 | 8 (1) | 8 (2) | 2 (1) | |
| Record throughput | | 6 | 10 (1) | 5 (2) | 2 (1) | |
| Sample Mixed Liquor (ML) | 2 | 10 | 3 (3) | 5 (1) | 1 | |
| Sample effluent | 2 | 10 | 3 (3) | 5 (1) | 1 | |
| Sample Underflow (RAS) | 2 | 10 | 3 (3) | 5 (1) | 1 | |
| Sample feed | 2 | 9 | 3 (2) | 4 (2) | 1 | |
| Recognise and report changes in final effluent | | 5 | 4 | 11 (3) | 2 | |
| Identify and report process malfunctions | | 3 (2) | 3 (1) | 13 (2) | 3 | 1 |
| Establish and adjust DO concentration range | | 3 | | 8 | 12 (3) | 4 (1) |
| Establish and adjust MLSS concentration range (sludge age) | | 1 | | 5 | 14 (3) | 4 (2) |
| Control throughput of flow between modules of plant | | | 1 | 10 | 8 (4) | 4 |
| Rectify process malfunctions (foaming and loss of nitrification) | | | 1 | 7 (1) | 11 (2) | 7 (2) |
| Minimise electricity consumption of plant | | 1 | | 2 (1) | 10 (2) | 8 (1) |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 2 | 1 | 2 | 6 (1) | 3 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 1 (1) | 7 | 5 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B03.2 : Operate Biological Nutrient Removal Activated Sludge Process

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| <i>All the competencies listed for Task B03 1 plus the following :</i> | | | | | | |
| Regulate internal recycles | | 1 | 1 | 8 (1) | 10 (3) | 6 (1) |
| Interpret analysis of DO | | | | 6 (1) | 10 (3) | 6 (2) |
| Interpret analysis of NH ³ | | | | 6 (1) | 10 (4) | 6 (2) |
| Interpret analysis of NO ³ | | | | 6 (1) | 10 (3) | 6 (1) |
| Interpret analysis of COD | | | | 6 (1) | 10 (3) | 6 (2) |
| Interpret analysis of PO ₄ | | | | 6 | 10 (3) | 6 (2) |
| Interpret analysis of SS | | | | 6 | 10 (3) | 6 (2) |
| Interpret analysis of Alkalinity | | | | 6 | 10 (3) | 6 (2) |
| Optimise process to achieve N and P removal | | | | 3 (1) | 9 (2) | 8 (2) |
| Optimise internal recycle(s) to achieve N and P removal | | | | 3 (1) | 10 (2) | 8 (2) |
| Optimise sludge age to achieve N and P removal | | | | 3 (1) | 10 (2) | 8 (2) |
| Optimise configuration to achieve N and P removal | | | | 3 (1) | 10 (2) | 8 (2) |
| Control sludge bulking | | | (1) | 3 (1) | 11 (1) | 7 (1) |
| Verify correctness of measuring instrument readings | | | | 4 (2) | 10 (1) | 6 (1) |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 1 | 3 | 6 (2) | 4 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 1 | 2 (1) | 6 (2) | 4 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B03.3 : Operate Bio-filter Process

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Operate feeding mechanism | | 10 | 4 (2) | 8 (2) | 1 | |
| Clean distribution system of filter | 8 (1) | 8 (2) | 5 | 1 (1) | 1 | |
| Maintain filter (ponding) | 1 (1) | 12 (1) | 5 | 3 (2) | | |
| Operate humus tank - underflow (See Task B02 2) | | 5 | 11 (2) | 6 (2) | 1 | |
| Operate humus tank - overflow (See Task B02 2) | | 6 | 10 (2) | 6 (2) | 1 | |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B03.4 : Operate Sludge Digestion Process

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Feed digesters | | 5 | 8 | 10 (3) | (1) | |
| Control mixing of digester contents | | 2 | 8 | 11 (3) | 1 (1) | |
| Operate boiler | | 2 (1) | 4 (1) | 14 (1) | 3 (1) | |
| Operate heat exchanger | | 1 (1) | 5 | 14 (2) | 1 (1) | |
| Operate fuel lines (gas / diesel) | | | 5 (2) | 15 (1) | 2 (1) | |
| Operate circulating equipment (pumps and compressors) | | 2 | 9 (2) | 9 (2) | 1 (1) | |
| Operate chemical treatment of boiler water process | | | 5 | 15 (2) | 2 (2) | (1) |
| Control heating of digester contents | | 2 | 2 | 15 (2) | 2 (2) | (1) |
| Analyse volatile acids | | | 2 | 11 (1) | 8 (2) | 4 (2) |
| Analyse alkalinity | | | | 11 (1) | 9 (2) | 4 (2) |
| Calculate volatile acid / alkalinity ratio | | | | 12 (1) | 9 (2) | 4 (2) |
| Analyse pH | | | 2 | 13 (2) | 6 (2) | 3 (1) |
| Measure gas activity / production rate | | | 1 | 13 (2) | 8 (1) | 4 (2) |
| Analyse CO content of the biogas | | | | 11 (1) | 9 (2) | 4 (2) |
| Analyse total solids | | | | 12 (1) | 8 (2) | 4 (1) |
| Analyse volatile solids | | | | 12 (1) | 8 (2) | 4 (2) |
| Calculate volatile solids reduction | | | 1 | 9 (1) | 10 (2) | 3 (2) |
| Perform Sensory Evaluation | | 2 | 1 | 9 | 6 (3) | 2 (2) |
| Maintain records of analyses | | | 4 | 9 (1) | 6 (4) | 3 |
| Control biological digestion process (interpretation and remedial action) | | | | 5 (2) | 14 (2) | 5 (1) |
| Remediate feed | | 1 | 1 | 6 (2) | 11 (1) | 4 |
| Remediate Mixing | | 1 | 1 | 6 (2) | 11 (2) | 4 |
| Remediate Heating | | | 1 | 5 (2) | 12 (2) | 5 |
| Remediate pH through chemical addition | | | 1 | 6 (2) | 11 (2) | 5 |
| Remediate effects of toxicity (washing out, recycling, flushing system etc.) | | | 1 | 5 (2) | 10 (2) | 7 |
| Remediate grit accumulation, scum and foam formation | | 1 | 1 | 4 (2) | 12 (2) | 5 |
| Start-up digester | | | 1 (1) | 6 (1) | 10 (3) | 6 |
| Interrupt digester process | | | (1) | 5 (1) | 9 (1) | 7 (1) |

OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B03.4 : Operate Sludge Digestion Process (Continued)

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Shut-down digester | | 1 | 1 (3) | 7 (1) | 8 (1) | 5 |
| Drain and clean digester | 5 (1) | 4 (2) | 5 | 7 (1) | 4 (1) | 1 |
| Control gas production and storage | | 1 | 1 (1) | 12 (1) | 7 (1) | (1) |
| Manage plant safety | | | | 5 (2) | 11 (1) | 8 (1) |
| Perform on-line plant maintenance | | (1) | (1) | 14 | 6 (2) | 1 |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | 1 | 2 (1) | 5 (1) | 4 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 2 (1) | 6 (1) | 4 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B04.1 : Operate Chemical Phosphate Removal Process

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| METAL SALTS | | | | | | |
| Sample chemicals for Fe content | 1 | 4 | 5 (1) | 5 | 4 (2) | (1) |
| Supervise off-loading of Metal Salts | | 4 | 5 (1) | 7 (1) | 2 (2) | |
| Record temperature for acceptance | | 4 | 10 | 3 (2) | 1 (2) | |
| Dose chemical (gravity / manual / not flow related) | | 5 | 8 | 5 (2) | (2) | |
| Dose chemical (gravity / manual / flow related) | | 1 | 5 | 8 (2) | 3 (2) | |
| Dose chemical (gravity / automated / not flow related) | | 4 | 8 | 8 (2) | 1 (2) | |
| Dose chemical (gravity / automated / flow related) | | 1 | 3 | 10 (2) | 3 (2) | |
| Dose chemical (pump / manual / not flow related) | | 1 | 3 | 9 (2) | 2 (2) | |
| Dose chemical (pump / manual / flow related) | | 1 | 3 | 11 (2) | 3 (2) | |
| Dose chemical (pump / automated / not flow related) | | 2 | 3 | 9 (2) | 1 (2) | 1 |
| Dose chemical (pump / automated / flow related) | | 1 | 1 | 9 (2) | 3 (2) | 1 |
| Identify, rectify and report malfunctioning equipment | | 1 | 4 (1) | 7 (1) | 1 (3) | 1 |
| Establish and adjust Metal Salts dosing strategy | | | 1 (1) | 5 | 8 (2) | 2 (1) |
| Control stock of Metal Salts | | | 2 | 7 (1) | 8 (2) | |
| LIME | | | | | | |
| Supervise off-loading of Lime | | 3 | 7 (2) | 5 (1) | 2 (1) | |
| Monitor automatic Lime slaking | | 1 | 7 (1) | 8 (3) | 1 | |
| Add Lime to achieve required pH | | 1 | 6 (1) | 9 (1) | 2 (2) | |
| Establish and adjust Lime dosing strategy | | | 1 | 4 (1) | 9 (2) | 3 (1) |
| Control stock of Lime | | 1 | 4 (2) | 5 | 7 (2) | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 2 | 1 | 1 | 5 (2) | 3 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 2 (1) | 4 | 3 (2) |

OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B04.2 : Operate Sludge Dewatering Process (Anaerobic or Waste Activated)

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Measure flow | | 4 | 11 (2) | 8 (2) | 1 | |
| Analyse total solids concentration | | | 4 | 9 (1) | 9 (3) | 6 |
| Calculate mass load of sludge (different for Anaerobic and Waste) | | | 4 | 5 (2) | 13 (2) | 6 |
| Calculate dosage of Polyelectrolyte | | | 1 (1) | 14 (2) | 11 (2) | |
| Prepare chemicals for dosing | | 3 | 5 (1) | 15 (2) | 3 (1) | |
| Control chemical dosing rate | | 1 | 2 | 16 (4) | 3 | |
| Operate mechanical dewatering equipment (centrifuges, vacuum filters, belt press, etc.) | | 1 | 5 (1) | 13 (3) | 5 | |
| Analyse sludge cake for Total Solids and calculate % water of cake | | | 2 | 12 (2) | 8 (3) | 2 |
| Check liquid stream clarity (visual and analytical) | | 3 | 7 | 7 (4) | 7 (1) | |
| Control sludge dewatering process (interpretation and remedial action) | | | 2 | 7 (1) | 12 (2) | 4 (1) |
| Optimise (increase or decrease) Polyelectrolyte dosing rate | | | 2 | 10 (1) | 10 (3) | 5 |
| Remediate mass load of sludge | | 1 | 1 | 10 (2) | 8 (2) | 4 |
| Manage disposal of liquid stream | | | 2 (2) | 12 (1) | 9 (1) | 2 |
| Prepare drying bed surface | 6 (1) | 6 (2) | 6 | 3 (1) | | |
| Record sludge volume disposed to bed and date | | 8 | 7 (2) | 6 (2) | | |
| Fill bed to predetermined level | (1) | 11 (2) | 6 (1) | 4 | | |
| Decant surface water | | 13 | 6 (2) | 2 (1) | | |
| Record meteorological data (temperature, rainfall, etc.) | | 6 | 9 (1) | 4 (2) | | |
| Perform on-line maintenance on plant | | 3 | 4 (2) | 11 (2) | 2 | |
| Control drying bed conditions (fly-nuisance, odours and weeds) | 1 | 7 (1) | 2 | 11 (2) | 3 | |
| Lift and remove sludge cake | 13 (1) | 6 (1) | 2 | 1 | | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | 2 | 3 | 5 (2) | 3 |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 1 | 3 (1) | 6 (1) | 3 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B05.1 : Operate Final Effluent Filtration Process (Same as Task A05.2)

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| <i>NOTE : THE TASK STATEMENT HAS BEEN CHANGED.</i> | | | | | | |
| <i>THE ORIGINAL TASK STATEMENT WAS : "OPERATE FILTRATION PROCESS"</i> | | | | | | |
| <i>(SEE ANNEXURE F OF WRC REPORT NO. KV 35/92)</i> | | | | | | |
| Operate filters | | 3 (2) | 6 (2) | 10 (1) | 1 | |
| Clean filters | 3 (1) | 6 | 7 (2) | 5 (1) | | |
| Measure turbidity, head loss and flow | 1 | 1 | 7 (3) | 11 (2) | 2 | |
| Operate microscreens | 1 | 2 (1) | 6 (1) | 10 (2) | 1 | |
| Clean microscreens | 1 (1) | 6 (1) | 9 | 5 (2) | | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 3 | 2 (1) | 4 (1) | 2 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 5 (1) | 4 (2) | 2 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B05.2 : Operate Sludge Disposal Process (Same as Task A07.1)

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Recognise stable and unstable sludges | | 1 | 4 (2) | 9 (2) | 8 | |
| Operate land disposal of sludge on sacrificial land | | 3 (1) | 3 (2) | 13 (2) | 2 | 1 |
| Operate land disposal of sludge on agricultural land | | 2 (1) | 3 | 13 (3) | 4 | 1 |
| Compost sludge | | 2 | 4 (1) | 7 (2) | 6 | |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Explain legal and other guidelines for sludge disposal | | | 2 | 2 | 2 (2) | 7 (1) |
| Explain health aspects of sludge disposal | | | 2 | 2 (1) | 2 (1) | 10 (1) |
| Apply appropriate safe working procedures (See Task E01) | 1 | 2 | 1 | 2 | 4 (2) | 7 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 4 (1) | 4 (2) | 4 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK B06 : Operate Effluent Disinfection Process (Same as Task A06.2)

DUTY B : OPERATING WASTE WATER TREATMENT PROCESSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Prepare disinfectant | | 4 | 7 (2) | 8 (2) | | |
| Regulate application of disinfectant | | 2 | 2 (1) | 14 (3) | 1 | |
| Determine disinfectant residuals | | | 4 (1) | 11 (2) | 4 (1) | |
| Perform emergency drills | 2 | 2 | 2 | 7 (2) | 9 (2) | 2 |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 1 | 1 | 1 | 3 | 4 (1) | 2 (2) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 3 (1) | 5 (1) | 2 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK C01 : Perform Sampling

DUTY C : PERFORMING ANALYSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Apply random sampling technique | 2 | 7 | 4 (3) | 5 (1) | 5 | |
| Apply representative sampling technique | 1 | 3 | 6 (2) | 9 (2) | 4 | |
| Apply grab sampling technique | 2 | 7 | 4 (2) | 8 (2) | 2 | |
| Apply isokinetic sampling technique | | 1 | 3 | 12 (3) | 4 (1) | 1 |
| Preserve samples | | | 3 (1) | 14 (4) | 6 | |
| Operate manual sampling equipment | 2 | 8 | 3 (2) | 9 (2) | 1 | |
| Operate automatic sampling equipment | | 2 | 7 (2) | 12 (2) | 1 | |
| Operate portable sampling equipment | | 2 | 7 (2) | 11 (2) | 1 | |
| Identify sampling areas | | | 1 | 5 (2) | 11 (3) | 6 |
| Identify sampling types | | | 1 | 4 (2) | 11 (1) | 7 (1) |
| Identify sampling stations | | | 1 | 4 (2) | 12 (1) | 2 (1) |
| Apply sampling procedures | 1 | | 3 | 9 (3) | 7 | 2 (1) |
| Perform sampling calculations | | | 2 | 8 (3) | 11 (2) | |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | 1 | 4 (1) | 6 | 3 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 1 (1) | 9 (1) | 3 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK C02 : Perform Tests

DUTY C : PERFORMING ANALYSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| <i>THIS TASK WILL BE ANALYSED AS PART OF THE QUALITY CONTROL MANAGEMENT (LABORATORY MANAGEMENT) OCCUPATION ANALYSIS. SEE ANNEXURE B OF WRC REPORT NO KV 35/92</i> | | | | | | |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK C03 : Interpret Test Results and Adjust Plant

DUTY C : PERFORMING ANALYSES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| <i>NOTE : THIS TASK IS SITE SPECIFIC AND WILL REQUIRE SITE SPECIFIC ANALYSIS</i> | | | | | 1 | |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK D02 : Control Mechanical and Electrical Functioning of Plant

DUTY D : ORGANISING AND CONTROLLING PRODUCTION

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Control functioning of screens | 1 | 1 (1) | 1 (1) | 10 (2) | 8 (1) | 2 |
| Control functioning of grit removal | 1 | 1 (1) | 1 | 10 (2) | 8 (1) | 2 |
| Control functioning of rag press | 1 | 1 (1) | 1 | 10 (2) | 8 (1) | 2 |
| Control functioning of grit removal equipment | 1 | 1 | 1 (1) | 10 (2) | 8 (1) | 2 |
| Control functioning of PST bridges | 1 | 1 | 1 (1) | 10 (2) | 8 (1) | 2 |
| Control functioning of fine screens (PST underflow) | 1 | 1 | 1 | 9 (3) | 8 (1) | 2 |
| Control functioning of pumps | | 1 | 1 | 8 (3) | 10 (1) | 2 |
| Control functioning of Centrifuge | | | 1 | 6 (3) | 13 (1) | 2 |
| Control functioning of Tubular filter press | | | 1 | 6 (3) | 13 (1) | 2 |
| Control functioning of D A F. (compressors, high pressure pumps, saturator, scraper, gearbox) | | | 1 | 6 (3) | 13 (1) | 2 |
| Control functioning of Drum filtration | | | 1 | 6 (3) | 15 (1) | 2 |
| Control functioning of Belt Press | | | 1 | 6 (3) | 12 (1) | 2 |
| Control functioning of Linear Screen | | | 1 | 7 (3) | 11 (1) | 2 |
| Control functioning of air blowers (composting) | | | 1 | 7 (3) | 12 (1) | 2 |
| Control functioning of dosing siphon (biofilter plant) | | | 2 (1) | 9 (2) | 10 (1) | 2 |
| Control functioning of Aerators / mixers | | | 1 (1) | 9 (2) | 11 (1) | 2 |
| Control functioning of Archimedes screw pumps | | | 1 | 9 (3) | 10 (1) | 3 |
| Control functioning of flow meters (mechanical, Ultra Sonic, Magnetic flow, Doppler) | | | 1 | 7 (3) | 13 (1) | 2 |
| Control functioning of Dissolved oxygen meters | | | 1 | 5 (3) | 13 (1) | 3 |
| Control functioning of Mixed Liquor Suspended Solids meter | | | 1 | 6 (3) | 12 (1) | 3 |
| Control functioning of Thermometers (Digital and Mechanical) | | | 2 | 6 (3) | 11 | 3 |
| Control functioning of on-line monitors | | | 1 | 5 (2) | 12 (1) | 3 |
| PREREQUISITE LEARNING TASKS | | | | | | |
| Apply appropriate safe working procedures (See Task E01) | 2 | 1 | 1 | 3 | 5 (1) | 3 (1) |
| Demonstrate use of appropriate safety equipment | 1 | 1 | 2 | 2 | 5 (2) | 4 |

OCCUPATIONAL COMPETENCIES FOR WATERCARE OPERATOR

TASK E01 : Maintain Personal and Plant Safety

DUTY E : SUPERVISING SUBORDINATES

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Apply safety procedures pertaining to handling and storage of chemicals | 3 | 3 | 3 | 5 (1) | 10 (2) | 5 (1) |
| Apply safety procedures pertaining to electrical installations | 3 | 3 | 3 | 5 (1) | 10 (2) | 5 (1) |
| Apply safety procedures pertaining to moving machinery | 4 | 3 | 2 | 5 (1) | 9 (2) | 6 (1) |
| Apply safety procedures pertaining to explosive gas | 4 | 3 | 2 | 5 (1) | 9 (2) | 6 (1) |
| Apply safety procedures pertaining to prevention of drowning (reactors) | 5 | 2 | 2 | 5 (1) | 9 (2) | 6 (1) |
| (This list still has to be completed) | | | | | | |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK AO2 : Manage Development of Staff DUTY A : MANAGING STAFF

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Identify training and development needs of employees | | | | 2 | 10 (2) | 12 (1) |
| Conduct career counselling interviews | | | | | 4 (1) | 18 (2) |
| | | | | | | |
| Act as training and development mentor | | | | 2 (1) | 11 (1) | 10 (2) |
| Compile succession plan at water care works level | | | | | 9 (1) | 14 (2) |
| Compile training plan at water care works level | | | | | 9 (1) | 14 (2) |
| Compile training budget at water care works level | | | | | 4 (1) | 15 (2) |
| Conduct on-the-job training | | | | 6 (1) | 12 (2) | 10 |
| Evaluate training outcomes | | | | 1 | 9 (1) | 13 (2) |
| Define training objectives for trainees | | | | 1 | 8 (2) | 14 (1) |
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| PREREQUISITE LEARNING TASKS | | | | | | |
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| Explain training system and policy of organisation | | | | | 7 (1) | 11 (1) |
| Explain basic principles of adult learning | | | | 1 | 6 (1) | 11 (1) |
| Explain principles of organisation continuity (succession) and career planning | | | | | 6 (1) | 11 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK AO4 : Administer Personnel Records

DUTY A : MANAGING STAFF

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Establish and maintain employee records for site specific use | | | | 1 (1) | 12 (1) | 10 |
| Submit staff data change to Personnel Department for central record updating | | | | 2 (1) | 8 (1) | 11 |
| Compile and submit Time Sheets | | | | 2 (2) | 12 | 7 |
| Write personnel reports (compile and submit weekly / monthly returns / reports | | | | 1 (1) | 11 (1) | 9 |
| Write personnel related proposals | | | | (1) | 8 (1) | 10 |
| Maintain organisation personnel procedures manual | | | | 2 | 8 | 11 (2) |
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| PREREQUISITE LEARNING TASKS | | | | | | |
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| Explain basic principles of personnel administration | | | | | 6 | 10 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK A05 : Manage Performance of Subordinates

DUTY A : MANAGING STAFF

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Plan and contract performance with subordinates | | | | 2 (1) | 11 (1) | 12 |
| Monitor performance throughout and outcomes | | | | 1 (1) | 11 (1) | 11 |
| Handle / Respond to unsatisfactory performance | | | | (1) | 8 (1) | 14 |
| Handle / Respond to satisfactory and above standard performance | | | | (1) | 9 (2) | 14 (1) |
| Assess / Appraise performance | | | | 1 (2) | 12 (1) | 12 (1) |
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| PREREQUISITE LEARNING TASKS | | | | | | |
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| Explain principles motivation | | | | 1 | 6 | 11 (1) |
| Explain principles of effective performance management | | | | | 7 | 11 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK AO6 : Facilitate Organisational Communications

DUTY A : MANAGING STAFF

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Conduct briefing group meetings | | | | | 12 (1) | 14 (1) |
| Conduct team building interventions | | | | | 5 (2) | 16 (1) |
| Conduct idea motivation / "sales" presentations | | | | (1) | 5 (2) | 17 (1) |
| Conduct problem solving / decision making meetings/discussions | | | | 1 (1) | 12 (2) | 14 (1) |
| Write business proposals | | | | 1 (1) | 4 | 14 (2) |
| Write minutes | | | (1) | 4 (2) | 12 | 7 |
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| PRE REQUISITE LEARNING TASKS | | | | | | |
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| Explain the principles of effective communication | | | | 1 | 6 (1) | 10 (1) |
| Explain the nature of communication in organisations | | | | | 7 | 10 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK B01 : Plan and Control Input and Output of Flow
DUTY B : MANAGING PRODUCTION

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Predict demand for output | | | | | 9 (10) | 10 (1) |
| Plan and organise input to meet predicted output demand | | | | 1 (1) | 9 (2) | 12 |
| Develop and document contingency plans to maintain non-routine flow and demand equalisation | | | | (1) | 10 (1) | 12 (1) |
| Regulate flow to meet fluctuation in demand (potable water) | | | (1) | 7 (1) | 12 (1) | 6 |
| Regulate flow to balance the process (waste water) | | | 1 (1) | 8 (2) | 13 | 4 |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| | | | | | | |
| Explain total water supply system in area of responsibility | 1 | | | 2 (1) | 9 (1) | 9 |
| Explain total water supply system operating procedure in area of responsibility | 1 | | (1) | 3 (1) | 9 (1) | 9 |
| Explain waste water collection and treatment system in aera of responsibility | 1 | | (1) | 3 (1) | 8 (1) | 9 |
| Explain waste water collection and treatment operating procedure in aera of responsibility | 1 | | (1) | 3 (1) | 8 (1) | 9 |
| Explain the performance capability and restriction of the particular water care works | | | 1 | 3 (1) | 8 (1) | 9 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK B04 : Control Maintenance of Production Records

DUTY B : MANAGING PRODUCTION

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Define record keeping objectives | | | | 2 | 11 (1) | 12 (1) |
| Identify types of records to be kept | | | | 1 | 8 (2) | 13 (1) |
| Set-up statutory recordkeeping system | | | | | 12 (2) | 10 (1) |
| Set-up production recordkeeping system | | | | 2 | 14 (2) | 9 (1) |
| Identify data collection points and procedure | | | | | 8 (2) | 14 (1) |
| Design format for data recording at each point | | | | 1 | 9 (2) | 11 (1) |
| Evaluate accuracy of manuel recordkeeping | | | | | 11 (2) | 10 (1) |
| Evaluate accuracy of computerised recordkeeping | | | | 1 (1) | 11 (2) | 11 (1) |
| Control reliability and validity of data collection | | | 1 | 1 | 11 (2) | 13 (1) |
| Identify data dissemination requirements | | | | | 9 (1) | 12 (1) |
| Produce management reports based on data collected | | | | | 9 (1) | 14 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK B06 : Participate in Plant Optimisation Programme

DUTY B : MANAGING PRODUCTION

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Define targets for improving operations efficiency | | | | 2 | 10 (1) | 15 ((2) |
| Develop plans for work optimisation | | | | 2 | 11 | 12 (2) |
| Develop & implement procedures for monitoring work optimisation activities & results | | | | 1 | 13 (1) | 11 (2) |
| Evaluate work optimisation results achieved | | | | 1 | 10 (1) | 13 (2) |
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| PREREQUISITE LEARNING TASKS | | | | | | |
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| Identify technologies employed in various plant designs | | | | | 6 (1) | 13 (1) |
| Explain the capabilities of watercare management technologies | | | | | 7 | 12 (1) |
| Advise on alternative technologies for optimising treatment | | | | | 8 | 12 (1) |
| Identify cause/effect relationships of plant optimisation proposals | | | | | 8 | 12 (1) |
| Identify basic principles of ergonomics | | | 1 | 1 | 8 | 12 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK B07 : Manage Procurement of Materials

DUTY B : MANAGING PRODUCTION

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Identify essential spares | | | | 10 (2) | 13 (1) | 8 |
| Develop procurement and stockkeeping policy for essential spares | | | | 4 (1) | 14 (2) | 9 |
| Develop and implement a stock control policy | | | | 3 (1) | 10 (2) | 11 |
| Develop a system for procurement and storage of chemicals | | | | 3 | 9 (2) | 9 |
| Determine annual quantities of consumables and other supplies | | | | 6 | 10 (2) | 7 |
| Develop and implement a system for monitoring the durability of spares | | | | 2 | 13 (2) | 8 |
| Control the investment in stock | | | | 2 | 13 | 9 (2) |
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| PREREQUISITE LEARNING TASKS | | | | | | |
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| Explain the basic principles of storekeeping | | | | 3 | 9 (1) | 7 |
| Explain the system for requisitioning materials | | | 1 | 3 (1) | 9 (1) | 7 |
| Explain the procedure | | | | 2 | 8 | 10 (2) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK C01 : Plan and Control Machine and Plant Safety

DUTY C : MANAGING SAFETY, HOUSEKEEPING AND SECURITY

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Identify typical safety hazards within the watercare industry | 2 | 3 | 3 (1) | 10 (2) | 9 (1) | 9 |
| Identify statutory requirements pertaining to plant and machine safety | | | 1 | 5 (1) | 9 (1) | 9 |
| Control the rectification of unsafe conditions | | | | 6 (1) | 10 | 6 (1) |
| Appoint safety representatives | | | | 1 | 4 (1) | 12 (1) |
| Plan, organise and control safety and first aid training of subordinate staff | | | | 1 | 9 (1) | 9 (1) |
| Plan and control housekeeping | | | | 5 | 10 (2) | 6 |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Explain how the NOSA system works | 1 | | 1 | 3 (1) | 4 (1) | 8 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK C02 : Plan and Control Personal Health and Safety

DUTY C : MANAGING SAFETY, HOUSEKEEPING AND SECURITY

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Control the issue and use (wearing) of protective clothing | | | 1 | 5 (1) | 12 (1) | 6 |
| Identify typical safety hazards within the watercare industry | 2 | 3 | 6 | 6 (1) | 11 (1) | 8 |
| Identify statutory requirements pertaining to personal safety | 1 | | 1 | 4 (1) | 11 (1) | 7 (1) |
| Appoint safety representatives | | | | 1 | 6 | 13 (2) |
| Control the rectification of unsafe acts | | | | 5 | 9 (1) | 11 (1) |
| Plan, organise and control safety and first aid training of subordinate staff | | | | 2 (1) | 9 (1) | 11 (1) |
| Plan and control housekeeping | | | | 4 | 12 (2) | 7 |
| Plan and implement a system for reporting accidents | | | | 4 | 8 (2) | 11 |
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| PREREQUISITE LEARNING TASK | | | | | | |
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| Explain the safety and health requirements of the MOS Act | 1 | | 1 | 3 (1) | 4 (1) | 11 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK C05 : Plan and Control Plant Security

DUTY C : MANAGING SAFETY, HOUSEKEEPING AND SECURITY

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Identify security areas to be protected | | | | 2 | 9 (2) | 14 (1) |
| Identify security control policy | | | | 2 | 6 (2) | 15 (1) |
| Identify effective security measures for securing each protection area | | | | 2 | 8 (1) | 16 (1) |
| Identify options for providing required protection | | | | 2 | 11 (1) | 14 (1) |
| Develop a procedure for reporting loss/damage to people/property | | | | 1 | 8 (2) | 13 (1) |
| Conduct security audits | | | | 1 | 9 (2) | 14 |
| Plan and implement an incident reporting system | | | | 1 | 9 (2) | 14 |
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| PREREQUISITE LEARNING TASK | | | | | | |
| Explain the basic requirements for insurance coverage | | | 1 | 2 | 4 (1) | 12 |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK D01 : Participate in Planning of Operating and Capex Budget

DUTY D : MANAGING FINANCE

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Identify strategic plan for the organisation | | | | 1 | 2 | 11 (2) |
| Identify budgetting system within the organisation (budgetting cycle) | | | | 1 | 3 | 16 (2) |
| Identify the budgetting structure and format for preparing operating and capex budget | | | | 1 | 3 | 16 (2) |
| Identify budgetting responsibility and procedure for operating and capex budget | | | | 1 | 3 | 16 (2) |
| Identify and apply strategies for operating and capex budget adjustments | | | | | 4 | 16 (2) |
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| PREREQUISIRE LEARNING TASKS | | | | | | |
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| Explain the basic principles of management accounting | | | | | 5 | 12 (1) |
| Explain the basic principles of cost accounting | | | | | 5 | 12 (1) |
| Explain the basic principles of strategic planning at departmental level | | | | | 4 | 13 (1) |
| Demonstrate use of a Personal Computer (PC) | | | 2 | 3 | 7 | 11 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK D02 : Control Expenses against Budget DUTY D : MANAGING FINANCE

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|---|---------|---------|---------|---------|---------|---------|
| Identify budget control system within the organisation | | | 1 | 3 | 6 | 14 (2) |
| Identify and apply strategies for controlling cost | | | 1 | 2 | 10 (1) | 13 (1) |
| Define targets for improving cost effectiveness of operations | | | 1 | 1 | 8 | 14 (2) |
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| PREREQUISITE LEARNING FINANCE | | | | | | |
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| Explain the basic principles of cost control | | | 1 | 2 | 4 | 12 (1) |
| Explain the basic principles of productivity improvement | | | 1 | 2 | 4 (1) | 12 (1) |
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OCCUPATIONAL COMPETENCIES FOR WATERCARE MANAGER

TASK D03 : Plan and Control utilisation of Assets

DUTY D : MANAGING FINANCE

| DESCRIPTION | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 |
|--|---------|---------|---------|---------|---------|---------|
| Set-up assets register | | | | 1 | 11 (2) | 13 |
| Calculate value of fixed assets | | | | 1 | 9 (2) | 14 (1) |
| Assess insurance coverage of assets | | | | 1 | 7 (1) | 15 (2) |
| Develop and implement a plan for optimising asset utilisation | | | | | 9 (1) | 16 (2) |
| Develop & implement a policy & procedure for minimising maintenance cost of assets | | | | | 7 (1) | 16 (2) |
| Calculate value of stock and other moveable assets | | | | | 17 (2) | 8 (1) |
| Develop and implement systems for controlling asset utilisation | | | | | 16 (1) | 8 (2) |
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| PREREQUISITE LEARNING TASKS | | | | | | |
| Explain the basic principles of asset management | | | | 1 | 5 (1) | 11 (1) |
| Explain the basic terms and conditions of asset assurance | | | | 1 | 5 (1) | 11 (1) |
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