

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR GREEN JOBS



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What are Occupational Standards (OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Wastewater Treatment Plant Technician

SECTOR: GREEN JOBS

SUB-SECTOR: Water Management

OCCUPATION: Operation & Maintenance

REFERENCE ID: SGJ/Q6601

ALIGNED TO: NCO-2004/ NIL

Wastewater Treatment Plant Technician specializes in operation & maintenance of Industrial and Housing Societies Wastewater Treatment Plant.

Brief Job Description: Wastewater Treatment Plant Technician specializes in operation & maintenance of the Industrial and Housing Societies Wastewater Treatment Plant.

Personal Attributes: This job requires the individual to concentrate on the job at hand and complete it without any accidents so diligence and hardworking are desired attributes for individuals performing this role. He must also demonstrate strong work ethics, an ability to communicate courteously with co-workers, and must be good with following instructions of the supervisor. He also has to monitor the activities of Wastewater Treatment Plant and troubleshoot accordingly, so he should be a quick decision maker and good in analysis.

Job Details	Qualifications Pack Code		SGJ/Q6601	
	Job Role		Wastewater Treatment Plant Technician This job role is applicable in both national and international scenarios	
	Credits(NSQF)	TBD	Version number	1.0
	Sector	Green Jobs	Drafted on	26/11/2015
	Sub-sector	Water Management	Last reviewed on	10/12/2015
	Occupation	Operation & Maintenance	Next review date	01/12/2020
	NSQC Clearance on		19/12/2018	

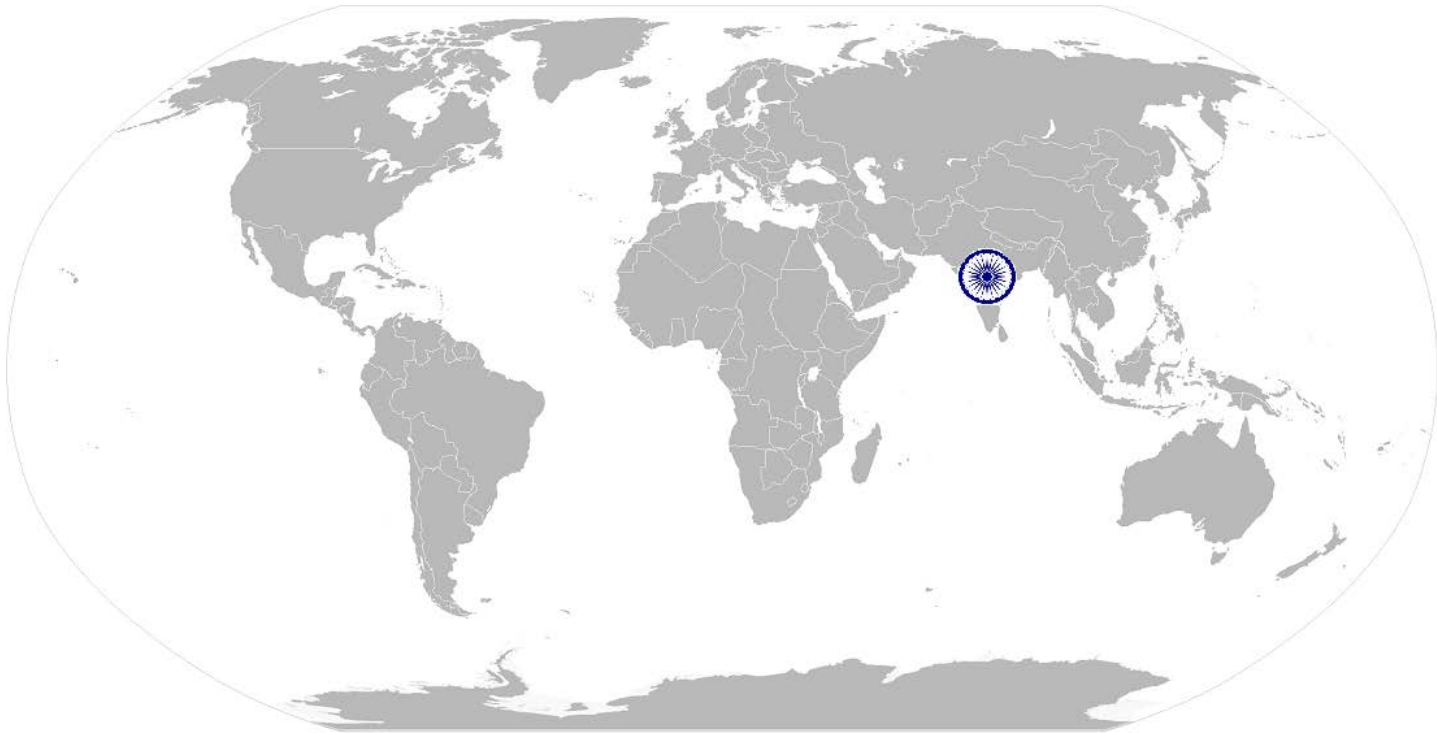
Job Role	Wastewater Treatment Plant Technician
Role Description	Wastewater Treatment Plant Technician specializes in operation & maintenance of the Industrial and Housing Societies Wastewater Treatment Plant.
NSQF level	4
Minimum Educational Qualifications	12 th Pass , 10 th Pass +ITI/Diploma, 8 th pass + 4 years' experience as Wastewater Treatment Plant Helper
Maximum Educational Qualifications	Not Applicable.
Training (Suggested but not mandatory)	N/A
Minimum Job Entry Age	18 years.
Experience	Not Required.
Applicable National Occupational Standards (NOS)	<p>Compulsory: SGJ/N6601: Operate the Wastewater Treatment Plant SGJ/N6602: Monitor and Maintain Wastewater Treatment Plant SGJ/N6605: Work Safety at Wastewater treatment plant.</p> <p>Optional: Not Applicable.</p>
Performance Criteria	As described in the relevant OS units.



Definitions

Keywords/Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization
OS	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
NOS	NOS are Occupational Standards which apply uniquely in the Indian context.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack
Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to conform to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured And how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.

National Occupational Standard



Overview

This unit is about operation of Wastewater Treatment plant.

SGJ/ N 6601

Operate Wastewater Treatment Plant

National Occupational Standard

Unit Code	SGJ / N6601
Unit Title (Task)	Operate Wastewater Treatment Plant
Description	This unit is about operation and maintenance of Wastewater treatment Plant.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> Operate Wastewater Treatment Plant
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Operate Wastewater Treatment Plant	To be competent, the user/ individual must be able to: <ul style="list-style-type: none"> PC1. Start the Wastewater Treatment Plant by switching on the pumps, mixers, controllers and other equipment's PC2. Perform the operation and cleaning of different screens PC3. Operate different valves in a Wastewater Treatment Plant PC4. Charge the slurry tank PC5. Operate oil skimmer and fill drums as required PC6. Perform the addition of chemicals and microbes to treat water as required PC7. Facilitate the calibration of process control equipment as needed PC8. Ensure that the sludge is handled properly PC9. Complete the documentation as required
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company /organization and its processes)	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> KA1. Company's reporting structure. KA2. Company's different department and concerned authority. KA3. Obtain authorization from specified supervisor. KA4. Companies policies and process.
B. Technical Knowledge	The individual on the job needs to know and understand the following aspects: <ul style="list-style-type: none"> KB1. Overall operations and different processes of wastewater treatment plant including but not limited to Screening, Sedimentation, neutralization, Absorption, Adsorption, Oxidation/Reduction, Ion exchange process, chlorination, Aeration tank, Sludge digesters, handling and drying. KB2. Working principle of different machineries in Wastewater treatment plant. KB3. Classification of different types of filters, and how they are cleaned or replaced. KB4. Safety compliances while handling chemicals and organic matter. KB5. Importance and need of treating Wastewater
Skill	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: <ul style="list-style-type: none"> SA1. Maintaining Records of the readings of different instrument.
	Reading Skills
The user/individual on the job needs to know and understand how to: <ul style="list-style-type: none"> SA2. Read English and/or vernacular language. SA3. Read and understand manuals, health and safety instructions, memos, other company documents. SA4. Ability to read from different sources- books screens in machines and signage. SA5. Understand the various color codes, as per standard electrical, mechanical and civil nomenclature. 	

SGJ/ N 6601

Operate Wastewater Treatment Plant

	<p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Express statements or information clearly so that others can hear and understand.</p> <p>SA7. Participate in and understand the main points of simple discussions.</p> <p>SA8. Respond appropriately to any queries.</p> <p>SA9. Communicate with supervisor.</p>
<p>B. Professional Skills</p>	<p>Decision Making</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. Follow organization rule-based decision making process.</p> <p>SB2. Take decision with systematic course of actions and/or response.</p> <p>Plan and Organize</p> <p>The user/individual on the job needs to know and understand how to :</p> <p>SB3. Planning and organization of work to meet deadlines.</p> <p>SB4. Work constructively and collaboratively with others.</p> <p>Customer Centricity</p> <p>N/A</p> <p>Problem Solving</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. Recognize problems and search for solutions.</p> <p>SB6. Choose best methods to complete assigned tasks.</p> <p>Analytical Thinking</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB8. Apply domain knowledge, observations and data to select course of action to perform tasks related to wastewater treatment.</p> <p>Critical Thinking</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB9. Critically evaluate information obtained from customers, supervisor and co-workers to perform day to day activities.</p> <p>SB10. Ask questions for better understanding.</p>

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SGJ/ N 6601

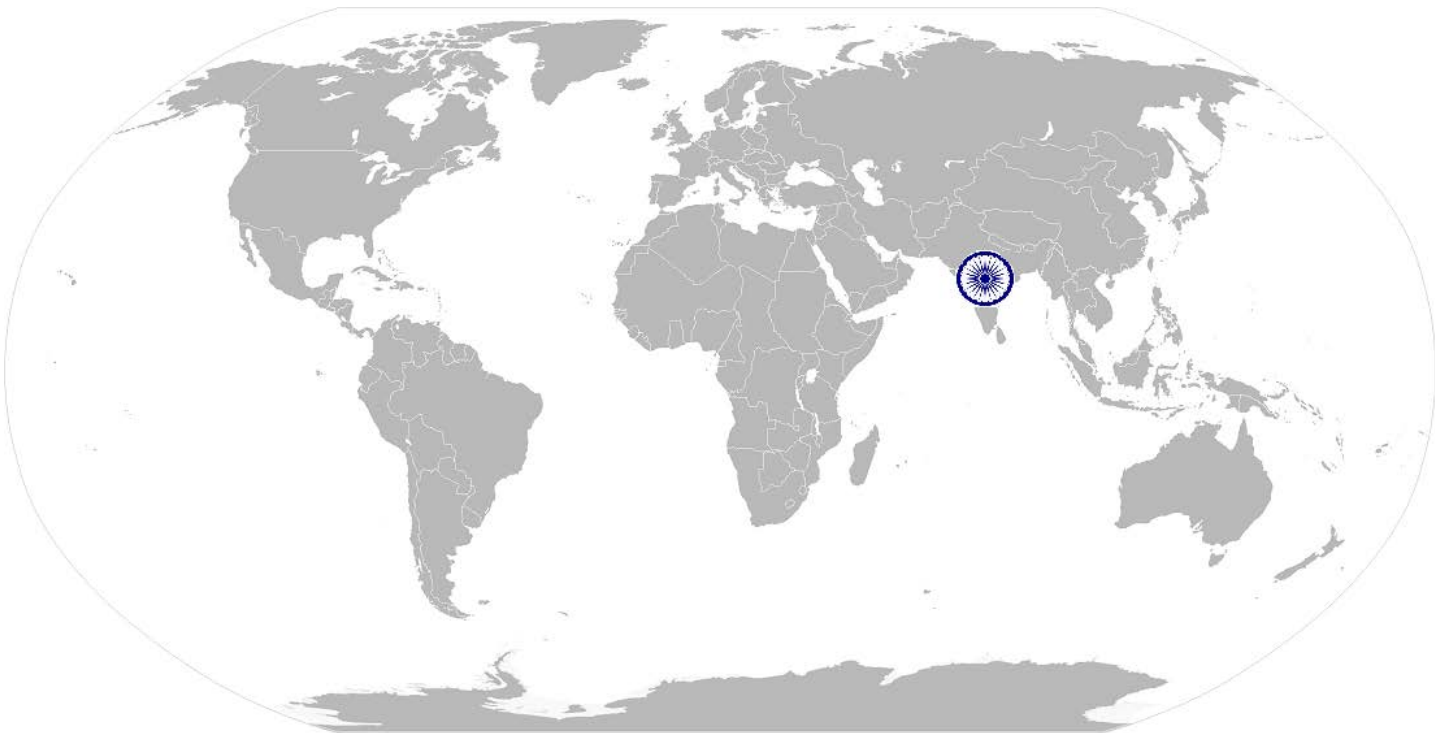
Operate Wastewater Treatment Plant

NOS Version Control

NOS Code	SGJ/N6601		
Credits (NSQF)	TBD	Version number	1.0
Industry Sector	Green Jobs	Drafted on	26/11/2015
Industry Sub-sector	Water Management	Last reviewed on	10/12/2015
Occupation	Operation and Maintenance	Next review date	01/12/2020



National Occupational Standard



Overview

This unit is about monitoring and maintaining the Wastewater Treatment Plant.



SGJ/ N 6602

Monitor and Maintain the Wastewater Treatment Plant

National Occupational Standard

Unit Code	SGJ / N6602
Unit Title (Task)	Monitor and Maintain the Wastewater Treatment Plant
Description	This unit is about monitoring and maintaining the Wastewater Treatment Plant.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • Monitor the working of Wastewater Treatment Plant • Maintain the Wastewater Treatment Plant
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Monitor the working of Wastewater Treatment Plant	To be competent, the user/ individual must be able to: PC1. Check all equipment's and fill out daily activities log sheet. PC2. Ensure proper working of Wastewater Collection system. PC3. Monitor the working of Wastewater Pumping station and record any anomalies. PC4. Take chemical inventory and record the chemical and water usage daily. PC5. Monitor and record all meter and gauge readings. PC6. Visually inspect the discharge at delivery point periodically for anomalies. PC7. Prepare and maintain the operation records.
Maintain the Wastewater Treatment Plant	PC8. Perform maintenance on valves, filters, pumps, tanks and aerators. PC9. Perform general maintenance. PC10. Ensure the cleanliness work area and equipment. PC11. Assist in developing the estimates for repair, maintenance and construction activities in the Wastewater Treatment Plant. PC12. Complete the documentation as required.
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company /organization and its processes)	The user/individual on the job needs to know and understand: KA1. Company's Policy on quality and standards, design norms, safety hazards, integrity, codes, compliance and guidelines. KA2. The Purpose and Scope of the work to be carried out and its importance. KA3. Maintenance of a wastewater treatment plant. KA4. Company's reporting structure. KA5. Company's different department and concerned authority.
B. Technical Knowledge	The individual on the job needs to know and understand the following aspects: KB1. Working principle of different major components in Wastewater treatment plant. KB2. Classification of different types of filters, valves, pumps, screens, tanks and how they are cleaned or replaced when required. KB3. Safety compliances while handling chemicals and organic matter. KB4. Overall Maintenance of Wastewater Treatment Plant KB5. Maintenance schedule of different parts of a Wastewater Treatment Plant KB6. Importance of scheduled maintenance
Skill	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Fill up documentation applicable to one's role.

SGJ/ N 6602

Monitor and Maintain the Wastewater Treatment Plant

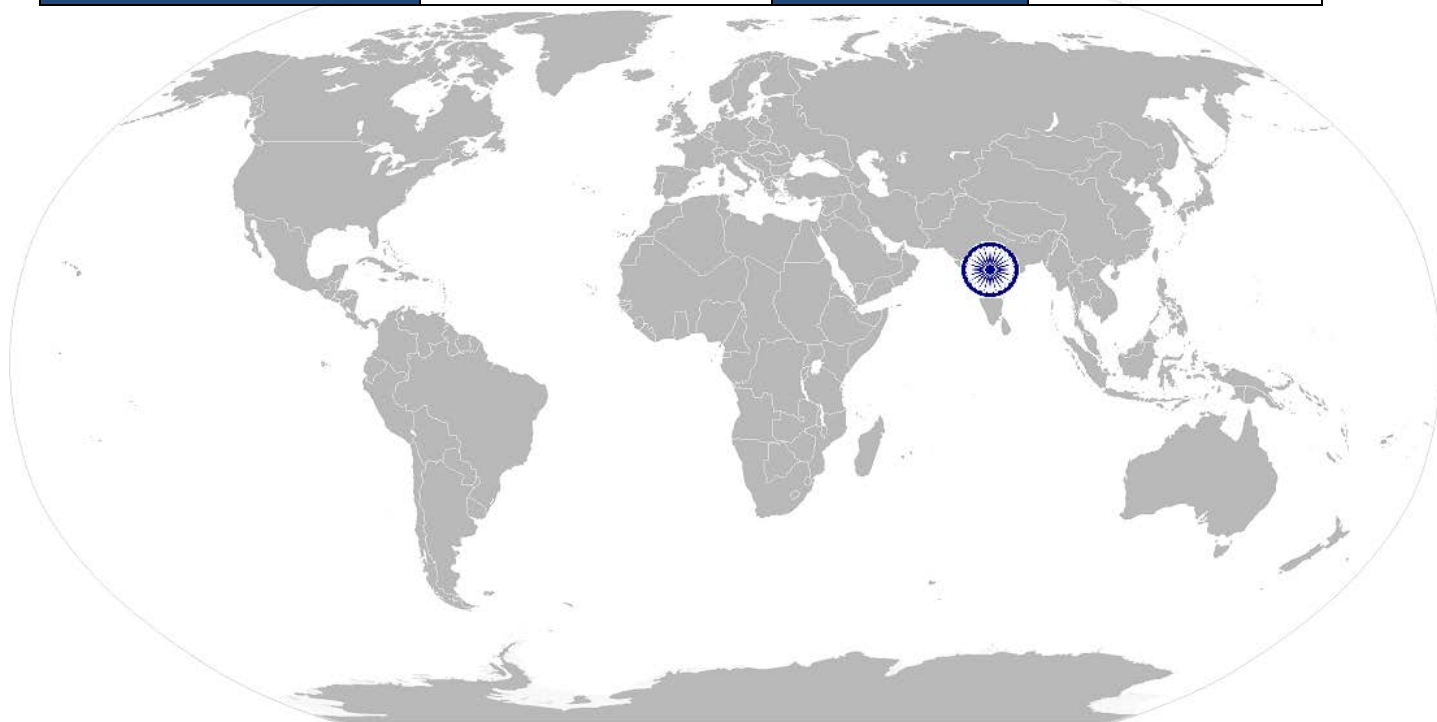
	<p>Reading Skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA2. Read English and/or vernacular language.</p> <p>SA3. Read and understand manuals, health and safety instructions, memos, other company documents.</p> <p>SA4. Ability to read from different sources- books screens in machines and signage.</p> <p>SA5. Understand the various color codes, as per standard electrical, mechanical and civil nomenclature.</p> <p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Express statements or information clearly so that others can hear and understand.</p> <p>SA7. Participate in and understand the main points of simple discussions.</p> <p>SA8. Respond appropriately to any queries.</p> <p>SA9. Communicate with supervisor.</p>
<p>B. Professional Skills</p>	<p>Decision Making</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. Follow organization rule based decision making system</p> <p>SB2. Take decision with systematic course of actions and/or response.</p> <p>Plan and Organize</p> <p>The user/individual on the job needs to know and understand how to :</p> <p>SB3. Planning and organization of work to meet deadlines.</p> <p>SB4. Work constructively and collaboratively with others.</p> <p>Customer Centricity</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. Follow code of conduct.</p> <p>SB6. Manage relationships with customers with intent on satisfying its requirements for service delivery.</p> <p>Problem Solving</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB7. Recognize problems and search for solutions.</p> <p>SB8. Choose best methods to complete assigned tasks.</p> <p>Analytical Thinking</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB10. Apply domain knowledge, observations and data to select course of action to perform tasks related to Wastewater Treatment.</p> <p>Critical Thinking</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB11. Critically evaluate information obtained from customers, supervisor and co-workers to perform day to day activities.</p> <p>SB12. Ask questions for better understanding.</p>

SGJ/ N 6602

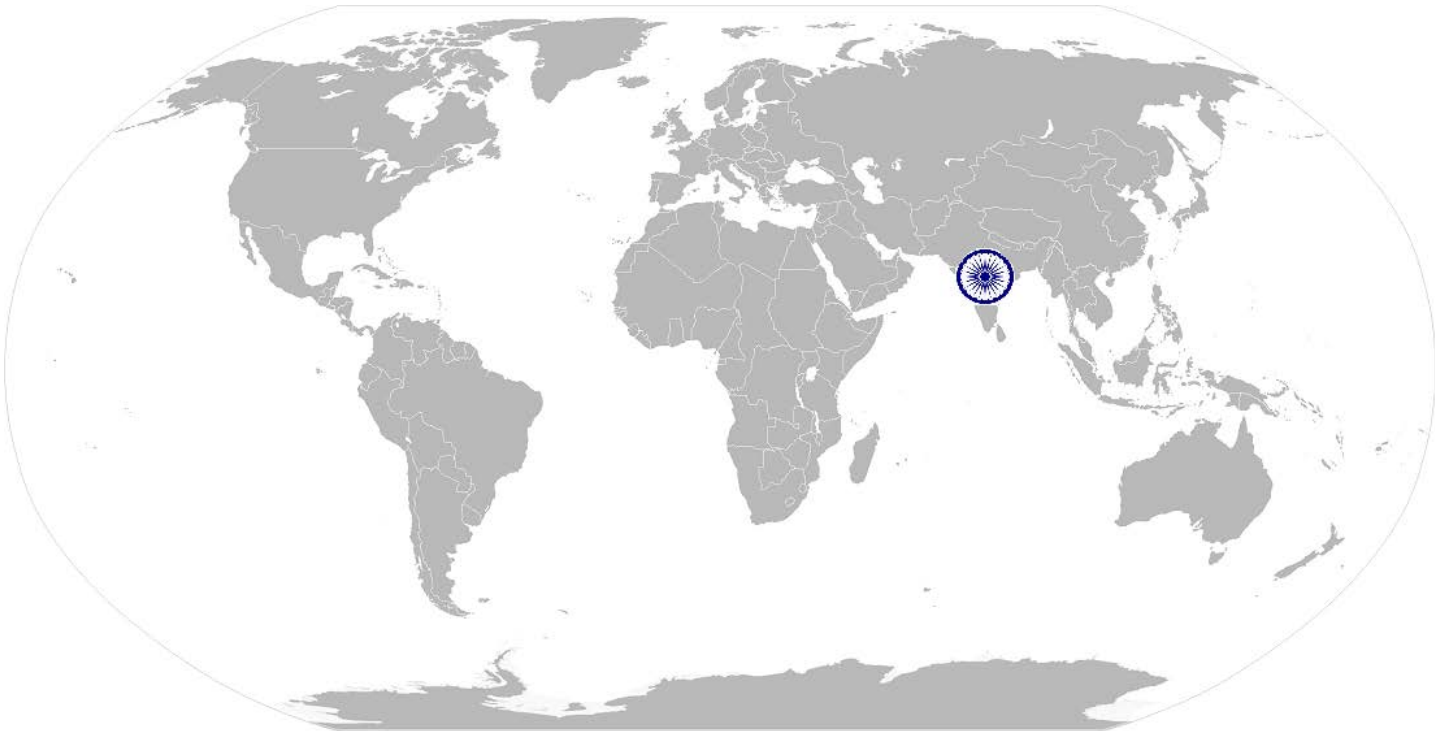
Monitor and Maintain the Wastewater Treatment Plant

NOS Version Control

NOS Code	SGJ/N6602		
Credits (NSQF)	TBD	Version number	1.0
Industry Sector	Green Jobs	Drafted on	26/11/2015
Industry Sub-sector	Water Management	Last reviewed on	10/12/2015
Occupation	Operation and Maintenance	Next review date	01/12/2020



National Occupational Standard



Overview

This unit is about maintaining work safety Wastewater Treatment Plant.

SGJ/ N 6605

Work Safety at Wastewater treatment plant

National Occupational Standard

Unit Code	SGJ / N6605
Unit Title (Task)	Work Safety at Wastewater treatment plant
Description	This unit is about confirming and adapting system design.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> Work Safety at Wastewater treatment plant
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Work safety at Wastewater treatment plant	To be competent, the user/ individual must be able to: <p>PC1. Identify the hazards associated with different tasks in a Wastewater Treatment Plant.</p> <p>PC2. Inform the concerned person of the accident and hazard occurred.</p> <p>PC3. Select the right Personal Protective equipment for different tasks in a Waste Treatment Plant.</p> <p>PC4. Perform the changing of chlorine cylinders safely.</p> <p>PC5. Ensure safe storage of corrosive substances.</p> <p>PC6. Ensure Health & Safety by following company policies & processes and industry standards for work safety.</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company /organization and its processes)	The user/individual on the job needs to know and understand: <p>KA1. Company's Policy on quality and standards, design norms, safety hazards, integrity, codes, compliance and guidelines</p> <p>KA2. The Purpose and Scope of the work to be carried out and its importance.</p> <p>KA3. The Operations of a wastewater treatment plant.</p> <p>KA4. Company's reporting structure.</p> <p>KA5. Company's different department and concerned authority.</p>
B. Technical Knowledge	The individual on the job needs to know and understand the following aspects: <p>KB1. Safety compliances while handling chemicals and organic matter</p> <p>KB2. Different hazards associated with the operation of the Waste Treatment Plant.</p> <p>KB3. Do's and Don'ts in operation of Waste Treatment Plant.</p> <p>KB4. Understand the importance and know-how of Personal Protective Equipment.</p> <p>KB5. Know-how on the procedure for safe handling of corrosive substances, chemicals, chlorine and chlorine equipment's.</p> <p>KB6. Know-how and understanding of safe storage of corrosive substances.</p> <p>KB7. Know-how of how to detect chlorine leakage and control.</p>
Skill	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: <p>SA1. Fill up documentation applicable to one's role.</p>
	Reading Skills
	The user/individual on the job needs to know and understand how to: <p>SA2. Read English and/or vernacular language.</p> <p>SA3. Read and understand manuals, health and safety instructions, memos, other company documents.</p> <p>SA4. Ability to read from different sources- books screens in machines and signage.</p> <p>SA5. Understand the various color codes, as per standard electrical, mechanical and civil nomenclature.</p>

SGJ/ N 6605

Work Safety at Wastewater treatment plant

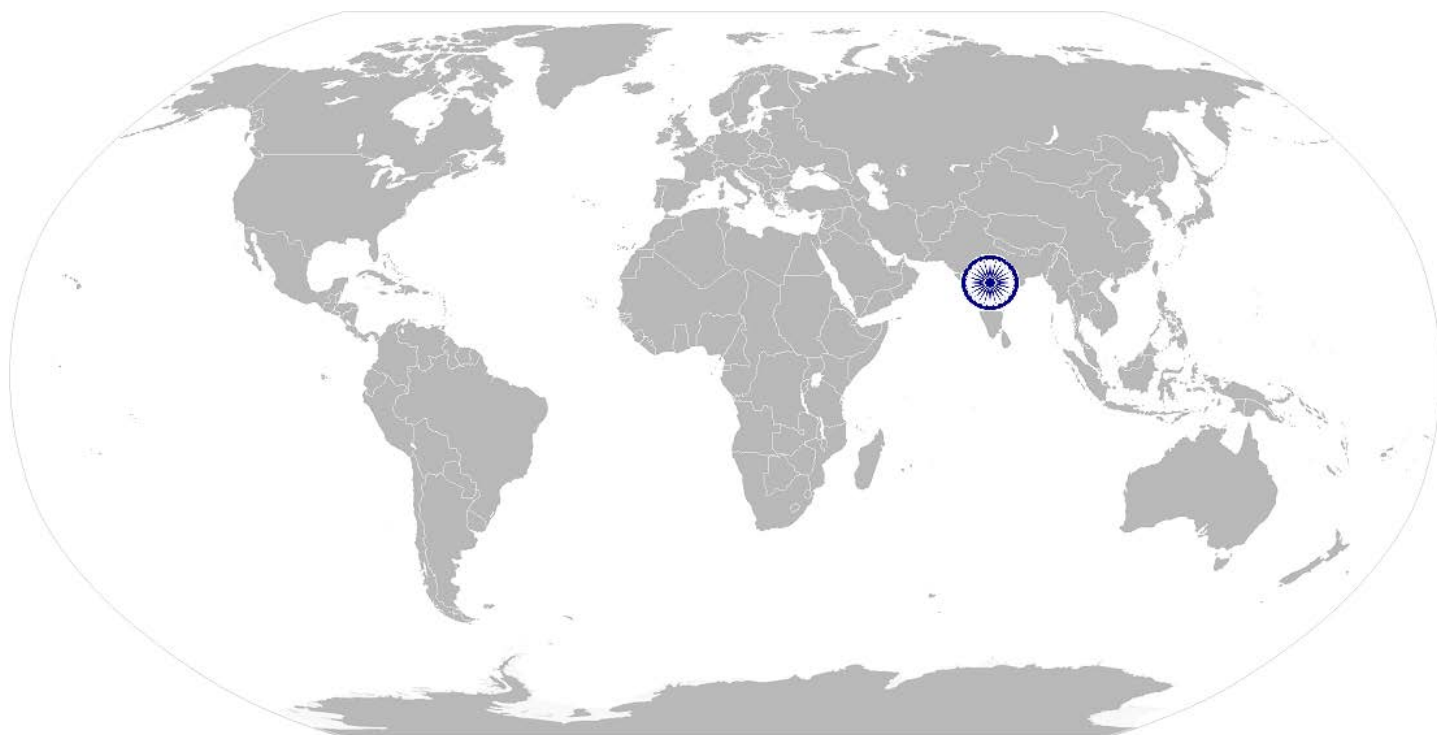
	<p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Express statements or information clearly so that others can hear and understand.</p> <p>SA7. Participate in and understand the main points of simple discussions.</p> <p>SA8. Respond appropriately to any queries.</p> <p>SA9. Communicate with supervisor.</p>
<p>B. Professional Skills</p>	<p>Decision Making</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. Follow organization rule based decision making process</p> <p>SB2. Take decision with systematic course of actions and/or response.</p>
	<p>Plan and Organize</p>
	<p>The user/individual on the job needs to know and understand how to :</p> <p>SB3. Planning and organization of work to meet deadlines.</p> <p>SB4. Work constructively and collaboratively with others.</p>
	<p>Customer Centricity</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. Follow code of conduct.</p> <p>SB6. Manage relationships with customers with intent on satisfying its requirements for service delivery.</p>
	<p>Problem Solving</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB7. Recognize problems and search for solutions.</p> <p>SB8. Choose best methods to complete assigned tasks.</p>
	<p>Analytical Thinking</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB10. Apply domain knowledge, observations and data to select course of action to perform tasks related to Wastewater Treatment.</p>
<p>Critical Thinking</p>	
<p>The user/individual on the job needs to know and understand how to:</p> <p>SB11. Critically evaluate information obtained from customers, supervisor and co-workers to perform day to day activities.</p> <p>SB12. Ask questions for better understanding.</p>	

SGJ/ N 6605

Work Safety at Wastewater treatment plant

NOS Version Control

NOS Code	SGJ/N6605		
Credits (NSQF)	TBD	Version number	1.0
Industry Sector	Green Jobs	Drafted on	26/11/2015
Industry Sub-sector	Waste Management	Last reviewed on	10/12/2015
Occupation	Health and Safety	Next review date	01/12/2020



Annexure

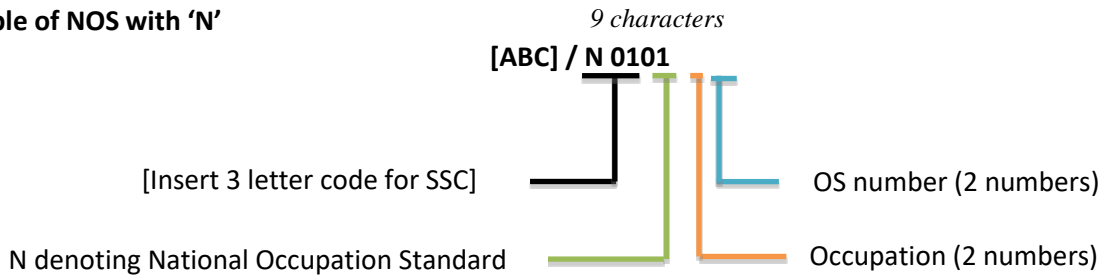
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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Qualifications Pack For
“Wastewater Treatment Plant Technician”

The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
Solar Photovoltaic	01-05
Solar Thermal	06-10
Wind	11-15
Hydro	16-20
Biomass	21-25
Geothermal	26-30
All Renewables (Cross-cutting/ Enabling Activities)	31-35
Alternative Fuel Transportation	36-40
Bio-fuels and Farming	40-45
Environmental Compliance and Sustainability Planning	46-50
Green Buildings	51-55
Energy Efficiency	56-60
Waste Management	61-65
Water and Wastewater Management	66-70
Co-generation	71-75
Other Green Jobs	76-99

Sequence	Description	Example
Three letters	Industry name	SGJ
Slash	/	/
Next letter	Whether QP or NOS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

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CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Wastewater Treatment Plant Technician

Qualification Pack SGJ/Q6601

Sector Skill Council Green Jobs

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

NOS	Performance Criteria	Marks Allocation			
		Total	Out of	Theory	Practical
SGJ/N6601 Operate Wastewater Treatment Plant	PC1. Start the Wastewater Treatment Plant by switching on the pumps, mixers, controllers and other equipment's	35	7	2	5
	PC2. Perform the operation and cleaning of different screens.		4	1	3
	PC3. Operate different valves in a waste rotary vacuum filter		3	1	2
	PC4. Charge the line slurry tanks		4	1	3
	PC5. Operate oil skimmer and fill drums as required		3	1	2
	PC6. Perform the addition of chemicals and microbes to treat water as required		4	1	3
	PC7. Facilitate the calibration of process control equipment as needed		3	1	2
	PC8. Ensure that the sludge is handled properly		4	1	3
	PC9. Complete the documentation as required		3	1	2
	Total	35	10	25	
SGJ/N6602 Monitor and Maintain Wastewater treatment plant	PC1. Check all equipment's and fill out daily activities log sheet.		8	3	5
	PC2. Ensure Proper working of Wastewater Collection system.		6	2	4



	PC3. Monitor and repair the working of Wastewater Pumping station and record any anomalies		6	2	4
	PC4. Take chemical inventory and record the chemical and water usage daily.		7	3	4
	PC5. Monitor and record all meter and gauge readings		8	2	6
	PC6. Visually inspect the discharge periodically for any anomalies		6	4	2
	PC7. Prepare and maintain the operation records		4	2	2
	PC8. Perform maintenance on filters & tanks and aerators.		6	2	4
	PC9. Perform general maintenance		6	2	4
	PC10. Ensure Cleanliness of the work area and equipment.				
	PC10. Assist in developing the estimates for repair, maintenance and construction activities in the Wastewater Treatment Plant.		4	2	2
	PC11. Complete the documentation as required.		4	2	2
		Total	65	26	39
SGJ/N6605 Work Safety at Wastewater treatment plant	PC1. Identify the hazards associated with different tasks in a Wastewater Treatment Plant.		12	5	7
	PC2. Inform the concerned person of the accident and hazard occurred.		5	2	3
	PC3. Select the right Personal Protective equipment for different tasks in a Waste Treatment Plant.		12	5	7
	PC4. Perform the changing of chlorine cylinders safely.		8	3	5
	PC5. Ensure safe storage of corrosive substances.		8	3	5
	PC6. Ensure Health & Safety by following company policies & processes and industry standards for work safety.		5	2	3
		TOTAL	50	20	30