

THE NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING



OCCUPATION: ENVIRONMENTAL MONITORING TECHNICIAN

LEVEL: NTA LEVEL 4

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ABBREVIATIONS

CBET	Competency Based Education and Training
COD	Chemical Oxygen Demand
CO	Carbon monoxide
NACTVET	National Council for Technical and Vocational Education and Training
NO _x	Nitrogen Oxide
NOS	National Occupational Standards
OS	Occupational Standards
pH value	Hydrogen Ion Concentration Index
PPE	Personal Protective Equipment
SO ₂	Sulfur Dioxide
SS	Suspended Solids
TET	Technical Education and Training
TP	Total Phosphorus
TSP	Total Suspended Particulate
TVET	Technical and Vocational Education and Training

GLOSSARY OF TERMS

Circumstantial knowledge:	Detailed knowledge, which allows the decision-making in regard to different circumstances and cross cutting issues.
Competence:	The ability to use knowledge, understanding, practical and thinking skills to perform effectively to the workplace standards required in employment.
Competency:	A description of the ability one possesses when able to perform a given occupational task effectively and efficiently.
Competency based education:	An instructional programme that derives its content from validated tasks and bases assessment on the learner's performance.
Curriculum:	A description or composite of statements about "what is to be learned" by the trainee/student in a particular instructional programme; a product that states the "intended learning outcomes".
Educational/training programme:	The complete curriculum and instruction (what and how) that is designed to prepare a person for employment in a job or other particular performance situation.
Occupation:	A specific position requiring the performance of specific tasks - essentially the same tasks are performed by all employees having the same title. (Example: baker)
Occupational area:	This is a broad grouping of related jobs. (Example: food service)
Occupational standards:	Specific requirements of competences people are expected to demonstrate in a particular occupational area, including knowledge and relevant attitudes. They also act as performance tool of assessment of the prescribed outcomes.
Performance criteria:	Indicate the expected end results or outcome in form of evaluative statements.
Skills:	The ability to perform occupational tasks with a high degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.
Standards:	It is a set of statement, which if proved true under working conditions, means that an individual is meeting an expected level and type of performance.
Task analysis:	The process of analysing each task to determine the steps, related knowledge, attitudes, performance standards, tools and materials needed, and safety concerns required of employees performing it.
Task:	A work activity that has a definite beginning and ending, is observable or measurable, consists of two or more definite steps, and leads to a product, service, or decision.

- Underpinning knowledge:** This is crucial knowledge that an individual must acquire in order to demonstrate competences that are associated in performing a given task.
- Verification process:** The process of having experts review and confirm the importance of the task (competency) statements identified through occupational analysis. Other questions, such as the degree of task learning difficulty are also frequently asked. This process is also sometimes referred to as validation.
- Occupational competence:** The application of knowledge and skills to perform consistently to the standards required in the work context.

1.0. INTRODUCTION

Technical Education and Training (TET) is one of the most important education sub-sectors in Tanzania, responsible for developing a skilled workforce to support the country's industrialization economic agenda. Tanzania's *Development Vision 2025* intends to raise the country's economy to a middle-income status, with a high level of human development. This requires a skilled workforce that is aligned with the needs of the public and private sectors of the economy. The National Council for Technical and Vocational Education and Training (NACTVET) has begun the job of drafting Occupational Standards (OS) that will eventually be adopted as National Occupational Standards (NOS) for use in the delivery of TET that meets the needs of the labour market and the country's economic agenda.

Occupational Standards (OS) are performance criteria that are matched with labour market demands. Each of them describes the functions, performance standards, and understanding or knowledge underpinning a given occupation. They combine skills, knowledge, and attitudes to describe best practice. They are useful tools for establishing job roles, personnel recruitment, supervision, and appraisal, as well as TET Standards. They are also helpful for benchmarking and harmonizing job qualifications on a national and international level. Standards, in general, provide a solid framework for high-quality TET that is labour market-relevant, current, and consistent in application across all public and private institutions.

However, it must be noted that Occupational Standards are different from Training /Education Standards. Occupational standards are defined in terms of activities performed by a person in a selected occupation (e.g., an electrical engineer designs electrical circuits, performs troubleshooting in electrical circuits, etc.), and are usually defined by Employers following procedures as agreed upon by all the stakeholders. On the other hand, Training and Education Standards are developed from the activities defined in the occupational standards, and they specify learning objectives to ensure that the necessary skills and knowledge are developed by a person to enable him/her to function at an agreed level in an occupation. Training and Education Standards are used to define curricula in training institutions. It is critical, however, to establish a direct link between the occupational standards and the training standards for both of them to respond collaboratively to the demands of the labour market.

For the purpose of TET delivery, Tanzania has adopted the Competence Based Education and Training (CBET) approach. The CBET approach focuses on providing learners with the skills and knowledge required to meet the occupational standards. Occupational standards are thus the starting point for developing competency-based training (CBET) programmes. Therefore, it is quite pertinent for TET institutions to use the relevant occupational standards as a benchmark for formulating their curricula.

Occupational Standards are developed based on a given occupation's current and future demands. As a result, they serve as a means of bridging the gap between the worlds of employment and technical education and training.

The document explains how the occupational standards were developed, as well as the scope, the occupational profile in the form of DACUM charts, and the Occupational Standards.

2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS

The process of developing these Occupational Standards involved both local and international expertise. The process began with an examination of major documents that guide Tanzanian skills development including the *10-year National Skills Development Strategy (2016-2026)*. NACTVET labour market reports were also used in the literature review to determine the skills demand in the Tanzanian labour market as a whole.

After the literature review, a team of experts in consultation with practitioners developed draft occupational standards. The draft document was used to develop an occupational profile for each occupation (DACUM Chart), which is attached as an **Appendix** to every Occupational Standard.

The occupational standards were validated during the stakeholders' forum held on 22nd and 23rd February 2024 at Morogoro. The information from the stakeholders' forum provides insight from the workplace, professional bodies, regulatory bodies and sector ministries regarding trends and changes in the profession, including how well graduates are prepared for working in the occupation.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR ENVIRONMENTAL MONITORING TECHNICIANS

These standards cover a broad range of duties and tasks that can be performed by an Environmental Monitoring Technician. However, the occupational standards are not meant to replace individual job descriptions, they are to be used for guidance in defining skill levels and knowledge for the technician in specific settings or positions. The Environmental Monitoring Technician may perform tasks in a number of key areas of the occupational standards, but not necessarily in all areas. For example, other personnel can be employed or designated to execute specific task during sampling under the supervision of an Engineer.

In the laboratory, the Environmental Monitoring Technician shall complete detection and analysis, from sample handover to standard detection and analysis, original record filling, quality control, data processing, etc.

Generally, the Environmental Monitoring Technician performs the following duties:

- a) Obtain the in-situ sampling plan;
- b) Prepare and calibrate sampling equipment;
- c) In-situ sampling;
- d) Clean the sampling site;
- e) Detect and analyze wastewater;
- f) Detect and analyze waste gas;
- g) Detect and analyze industrial enterprise noise;
- h) Overhaul and calibrate laboratory analytical instrument and equipment;
- i) Clean the laboratory and dispose the waste;
- j) Control quality;
- k) Communicate with customers;
- l) Analyze data and prepare report;

- m) Review the monitoring report;
- n) Manage occupational health and safety.

The Occupational standards have been clustered into NTA qualification levels, i.e. NTA Level 4, 5 and 6.

4.0. VALIDITY PERIOD

The occupational standards will be valid for 3-5 years due to the fast-changing nature of technology. The review will proceed in the same manner as the previous one, with new occupational standards being developed based on current labour market Information.

5.0. OCCUPATIONAL STANDARDS

5.1 OCCUPATIONAL STANDARDS FOR ENVIRONMENTAL MONITORING TECHNICIAN – NTA – LEVEL 4

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	OBTAIN THE IN-SITU SAMPLING PLAN	DUTY NO.	401
TASK TITLE	FORMULATE THE SAMPLING SCHEDULE	TASK NO.	4011
PERFORMANCE CRITERIA	The person performing this task must be familiar with the standards and regulations related to sampling items and capable of preparing the sampling schedule.		
RANGE STATEMENT	<p>The task may be executed in the office under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Computers; 2. Word Processing Software/Hardware; 3. Printers; 4. Scanners; 5. Safety gear. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Acquire the name and address of the project unit; 2. Confirm the sampling category; 3. Obtain the contact person and number of the project unit; 4. Confirm the sampling time, location, frequency and quantity; 5. Prepare the sampling plan; 6. Observe health, occupational and environmental safety rules and regulations. 	<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Record the sampling information; 1.2 Contact with the linkman of the project unit skillfully and confirm relevant information 1.3 Prepare the sampling plan. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Standards and regulations for sampling and monitoring items; 2.2 Authenticity of sampling information. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p>		

	<p>3.1 Sampling method for monitoring items;</p> <p>3.2 Requirement for sampling time, location, frequency and quantity;</p> <p>3.3 Requirements for filling sampling record.</p> <p>4.0 Essential skills</p> <p>4.1 Writing skills;</p> <p>4.2 Computer data entry skills;</p> <p>4.3 Basic communication skills;</p> <p>4.4 Basic organizational skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	The sampling schedule is formulated correctly according to the requirements of the sampling plan.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Operation, use and maintenance of the sampling instrument and equipment; 2. Sampling information; 3. Occupational health and safety; 4. Self-safety awareness.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	OBTAIN THE IN-SITU SAMPLING PLAN	DUTY NO.	401
TASK TITLE	CONTACT CUSTOMERS	TASK NO.	4012
PERFORMANCE CRITERIA	The person performing this task must be able to communicate with customers properly according to technical requirements and solve the problems encountered during preparation of the sampling plan.		
RANGE STATEMENT	<p>The task may be executed in the office under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Pens; 2. Word Processing Software/Hardware; 3. Telephones. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Confirm the accuracy of the sampling information; 2. Confirm the environmental monitoring scope and items; 3. Communicate about the time arrangement of sampling; 4. Confirm the environmental monitoring progress and requirements; 5. Communicate about the coordination with the customer's unit for sampling; 6. Solve the problems during preparation of the sampling plan. 		<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Communicate with customers with proper methods; 1.2 Deal with the communication contents. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Standards and regulations for sampling of monitoring items; 2.2 Standardization, integrity and reasonability of the sampling plan. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Selection basis of sampling points; 3.2 Time arrangement of sampling; 3.3 Requirements for sampling and production and operating activities. <p>4.0 Essential skills</p> <ol style="list-style-type: none"> 4.1 Language expression and communication skills; 4.2 Customer service skills; 4.3 Teamwork skills; 	

	4.4 Skills in logical thinking, problem identification and solving.
DESCRIPTION OF THE END PRODUCT / SERVICE	A customer sampling plan was completed and a communication record form was formulated after communicating with customers.
Circumstantial knowledge:	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Chemical toxicological effects of wastewater and waste gas; 2. Safety protection measures for hazardous environment; 3. Emergency measures;

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	OBTAIN THE IN-SITU SAMPLING PLAN	DUTY NO.	401
TASK TITLE	INVESTIGATE THE SAMPLING SITE	TASK NO.	4013
PERFORMANCE CRITERIA	The person performing this task must be able to investigate the sampling site according to technical requirements and solve the problems during sampling survey.		
RANGE STATEMENT	<p>The task may be executed in the sampling site under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Telephones; 2. Automobiles; 3. Protective gears such as protective clothing and gloves. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Collect the data of the sampling site such as geographical location, natural conditions and environmental conditions; 2. Investigate the situation of the sampling site; 3. Confirm the sampling object, location, frequency, time and quantity; 4. Confirm the production and operating status; 5. Solve the problems found during sampling survey and confirmation through good language expression, communication, and exchange. 		<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Record the investigation information of the sampling site; 1.2 Collect the information of the sampling site. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Sampling requirements for monitoring items; 2.2 Basic principles for interacting with people. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Monitoring items of samples; 3.2 Setting of sampling location and the sampling duration and frequency; 3.3 Requirements for sampling and production and operating activities; 3.4 Environmental safety risk factors of the sampling site. <p>4.0 Essential skills</p> <ol style="list-style-type: none"> 4.1 Communication skills; 4.2 Customer service skills; 	

	<p>4.3 Self-safety awareness;</p> <p>4.4 Skills in logical thinking, problem identification and solving.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	The sampling site investigation form was completed according to the sampling requirements and field investigation situation.
Circumstantial knowledge:	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational health and safety; 2. Safety protection measures for hazardous environment; 3. Identification and elimination of the hazards of the occupational post.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PREPARE AND CALIBRATE SAMPLING EQUIPMENT	DUTY NO.	402
TASK TITLE	PREPARE THE SAMPLING TOOLS AND EQUIPMENT AND FILL IN THE INSTRUMENT WAREHOUSE IN/OUT RECORDS	TASK NO.	4021
PERFORMANCE CRITERIA	The person performing this task must be able to prepare sampling tools and equipment, and correctly fill in the instrument warehouse in/out records according to relevant standards and regulations.		
RANGE STATEMENT	<p>The task may be executed in the laboratory under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Sampling instruments and equipment; 2. Instruments and equipment warehouse in/out record form; 3. Cleaning tools of instruments and equipment. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Conduct basic chemical analysis and instrument analysis; 2. Choose correct sampling instruments according to the analysis items; 3. Clean, arrange and prepare for sampling as required; 4. Check, maintain and calibrate the instruments and equipment according to the specifications for using sampling instruments; 5. Correctly fill in the instrument calibration and maintenance record and the warehouse in/out records; 6. Judge the standardization, integrity and reasonability of preparation of sampling tools and equipment. 	<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Choose, clean, maintain and calibrate the instruments for different monitoring items; 1.2 Fill in the instrument warehouse in/out records. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Basic rules for choosing, calibrating, cleaning and maintaining instruments; 2.2 Specifications for filling in instruments and equipment warehouse in/out records. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Selection of instruments and equipment for different monitoring items; 3.2 Calibration, cleaning and maintenance method of instruments and equipment; 		

	<p>3.3 Specifications for filling in instruments and equipment warehouse in/out records.</p> <p>4.0 Essential skills</p> <p>4.1 Writing skills;</p> <p>4.2 Computer data entry skills;</p> <p>4.3 Self-safety awareness.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	The sampling tools and equipment are correctly chosen and the instrument warehouse in/out record is prepared according to relevant standards and regulations.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Technical standards and specifications of the industry; 2. Operation, use and maintenance of the instrument and equipment; 3. Filling of warehouse in/out records; 4. Occupational health and safety.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PREPARE AND CALIBRATE SAMPLING EQUIPMENT	DUTY NO.	402
TASK TITLE	INSPECT AND CALIBRATE USING CONDITIONS OF THE AIR SAMPLER, THE SOUND LEVEL METER AND OTHER INSTRUMENTS	TASK NO.	4022
PERFORMANCE CRITERIA	The person performing this task must be familiar with the standards and regulations related to sampling items, master the use and calibration methods of the air sampler, sound level meters and other instruments, carefully fill in the instrument calibration and inspection record and be responsible for the fairness, scientificity, accuracy and authenticity of sampling.		
RANGE STATEMENT	The task may be executed in the laboratory under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer. The tools and equipment to be used include: 1. Air sampler; 2. Sound level meter; 3. Intelligent mass flowmeter.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able to do the following: 1. Check the functions of the air sampler and the sound level meter and complete self-inspection of instruments; 2. Change and clean the dryer and sampling tube of the air sampler; 3. Check the functions of the air sampler and the sound level meter and complete self-inspection of instruments; 4. Calibrate the air sampler with intelligent mass flowmeter; 5. Calibrate the sound level meter; 6. Judge the performance of instruments correctly and deal with the abnormalities.	<p>Detailed knowledge about:</p> <p>1.0 Methods The person performing this task must be able to explain how to: 1.1 Complete self-inspection of instruments and equipment; 1.2 Complete calibration of instruments and equipment; 1.3 Change the quick-wear parts of instruments and equipment; 1.4 Correct faults of instruments and equipment.</p> <p>2.0 Principle The person performing this task must be able to explain the following principles: 2.1 Sampling technical standards; 2.2 Filling principles of instrument calibration and inspection record.</p> <p>3.0 Theories The person performing this task must be able to explain the following: 3.1 Specifications for calibration and use of air sampler;</p>		

	<p>3.2 Specifications for calibration and use of sound level meter;</p> <p>3.3 Specifications for calibration and use of other instruments.</p> <p>4.0 Essential skills</p> <p>4.1 Self-safety awareness and sense of responsibility;</p> <p>4.2 Learning skills;</p> <p>4.3 Communication skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	The inspection and calibration records are filled in by checking and calibrating the instruments for items such as the air sampler, the sound level meter, and other instruments.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational health and safety; 2. Professional competence and sense of responsibility; 3. Occupational codes and standards.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PREPARE AND CALIBRATE SAMPLING EQUIPMENT	DUTY NO.	402
TASK TITLE	USE THE SAMPLING INSTRUMENT CORRECTLY	TASK NO.	4023
PERFORMANCE CRITERIA	The person performing this task must be able to use the air sampler, the sound level meter and other instruments correctly according to relevant standards and regulations, and complete in-situ sampling and deal with abnormalities.		
RANGE STATEMENT	The task may be executed in the laboratory under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer. The tools and equipment to be used include: 1. Air sampler; 2. Sound level meter.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	Underpinning knowledge		
The person performing this task must be able to do the following: 1. Set the instrument parameters correctly according to the sampling items; 2. Install the filter membrane and sampling bottle, head and gun correctly; 3. Use the air sampler; 4. Use the sound level meter; 5. Fill in the instrument using records; 6. Judge the performance of instruments correctly and deal with the abnormalities.	Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Complete parameter setting of instruments and equipment; 1.2 Complete preparation and installation of filter membrane and sampling bottle, head and gun; 1.3 Use the photoelectric sampler usage; 1.4 Use the sound level meter. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Specifications for instruments and equipment maintenance; 2.2 Filling principles of instrument using record. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Specifications for using air sampler; 3.2 Specifications for using sound level meter; 3.3 Filling method of instrument using record. 4.0 Essential skills 4.1 Self-safety awareness and sense of responsibility;		

	<p>4.2 Learning skills;</p> <p>4.3 Basic communication skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	Relevant records are filled in by using the air sampler, sound level meter and other instruments correctly.
Circumstantial knowledge:	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Calibration method of sampling instruments; 2. Professional competence and sense of responsibility; 3. Occupational codes and standards. 4. Occupational health and safety.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PREPARE AND CALIBRATE SAMPLING EQUIPMENT	DUTY NO.	402
TASK TITLE	PREPARE SAMPLING CONSUMABLES AND MEDICAMENT AND FILL IN THE WAREHOUSE IN/OUT RECORDS	TASK NO.	4024
PERFORMANCE CRITERIA	The person performing this task must be able to fill consumables and medicament warehouse in/out records correctly and be responsible for the scientificity, accuracy and authenticity of sampling.		
RANGE STATEMENT	<p>The task may be executed in the laboratory under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Consumables; 2. Medicaments; 3. Glassware for chemicals preparation; 4. Instruments and equipment warehouse in/out record form. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Prepare chemical reagents with chemicals correctly; 2. Choose correct sampling consumables and chemicals according to analysis items; 3. Arrange, prepare and check the sampling consumables according to sampling requirements; 4. Use, prepare and store medicament according to sampling requirement; 5. Fill in the medicament label and consumables/medicament warehouse in/out records correctly; 6. Judge the standardization, integrity and reasonability of preparation of sampling consumables and medicament. 	<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Select and use different consumables and medicaments for different monitoring items; 1.2 Fill in medicament label and consumables/medicament warehouse in/out records. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Basic rules for preparing and checking consumables of different monitoring items; 2.2 Basic rules for using, preparing and storing medicaments of different monitoring items; 2.3 Specifications for filling the consumables/medicament warehouse in/out records. <p>3.0 Theories</p> <p>The person performing this task must be able to explain:</p>		

	<p>3.1 Selection and preparation of consumables for different monitoring items;</p> <p>3.2 Principles for medicament preparation.</p> <p>4.0 Essential skills</p> <p>4.1 Writing skills;</p> <p>4.2 Computer data entry skills;</p> <p>4.3 Self-safety awareness.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	Relevant consumables and medicament are prepared carefully, and the consumables and medicament warehouse in/out records are filled in correctly according to the requirements for item sampling.
Circumstantial knowledge:	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Technical standards and specifications of the industry; 2. Selection and checking of consumables; 3. Preparation and storage of medicament; 4. Filling of warehouse in/out records; 5. Occupational health and safety.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CONDUCT IN-SITU SAMPLING	DUTY NO.	403
TASK TITLE	TAKE SAMPLES OF WASTEWATER OF POLLUTION SOURCE	TASK NO.	4031
PERFORMANCE CRITERIA	The person performing this task must be able to take samples of wastewater of pollution source according to relevant standards and regulations.		
RANGE STATEMENT	<p>The task may be executed in the sampling site under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Regulations and standards for wastewater sampling of pollution source; 2. Sampling plans or solutions; 3. Sampler bottles; 4. Wastewater sampling record forms and sample bottle labels; 5. Instrument using records. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Determine the wastewater monitoring items according to different monitoring industries; 2. Determine the sampling location, time and frequency according to different monitoring items; 3. Determine the water sample type and sampling quantity according to monitoring items, and choose reasonable sampling apparatus (bottle); 4. Complete installation and correct use of sampling apparatus (bottle); 5. Complete monitoring of items that should be monitored on site (water temperature, flow and pH); 6. Fill in the sewage sampling record and sample bottle label normatively; 7. Complete the quality assurance work of wastewater sampling; 8. Fill in the sewage sampling form using record of instruments and equipment; 		<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Use the sampling bottle (apparatus) correctly; 1.2 Choose sampling points according to wastewater monitoring items; 1.3 Determine the water sample type and sampling quantity; 1.4 Fill in the sewage sampling record and sample bottle label normatively. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Arrangement principles for wastewater sampling points of pollution source; 2.2 Monitoring time and sampling frequency; 2.3 Quality assurance of wastewater sampling. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p>	

<p>9. Judge the performance of instruments correctly and deal with the abnormalities.</p>	<p>3.1 Using method of wastewater sampling apparatus (bottle) of pollution source;</p> <p>3.2 Wastewater sampling location, time and frequency of pollution source;</p> <p>3.3 Quality assurance of wastewater sampling;</p> <p>3.4 Standard filling of instrument using record.</p> <p>4.0 Essential skills</p> <p>4.1 Teamwork skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Learning skills;</p> <p>4.4 Abnormality treatment skills;</p> <p>4.5 Self-safety awareness and sense of responsibility.</p> <p>5.0 Mathematical skills</p> <p>5.1 Numerical computation;</p> <p>5.2 Statistics.</p>
<p>DESCRIPTION OF THE END PRODUCT / SERVICE</p>	<p>Wastewater samples of pollution source are collected according to the monitoring industry, the instrument using records are filled in accordance with the industrial standards and technical specifications.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Installation and simple maintenance of instruments and equipment; 2. Replacement of quick-wear accessories of instruments and equipment; 3. Standardized writing; 4. Abnormality analysis and judgment of instruments; 5. Occupational health and safety; 6. Professional quality.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CONDUCT IN-SITU SAMPLING	DUTY NO.	403
TASK TITLE	TAKE SAMPLES OF WASTE GAS OF POLLUTION SOURCE	TASK NO.	4032
PERFORMANCE CRITERIA	The person performing this task must be able to take samples of waste gas of pollution source according to relevant standards and regulations.		
RANGE STATEMENT	<p>The task may be executed in the sampling site under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Automatic comprehensive test instrument for smoke dust and gas; 2. Dual-channel smoke sampler; 3. Ringelmann smoke chart. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	Underpinning knowledge		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Determine the arrangement method of sampling points, sampling position and quantity according to the nature of pollution source; 2. Determine the mode of sampler according to the standards and regulations of monitoring items; 3. Complete installation and use of sampling instrument; 4. Determine the smoke parameters/blackness and particle content with instrument; 5. Determine the content of sulfur dioxide, nitrogen oxides, carbon monoxide and oxygen in waste gas pollution source with fixed potential electrolysis method. 	<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Confirm the arrangement of sampling points, sampling quantity and location of waste gas pollution source; 1.2 Choose the sample collection mode according to the types and items; 1.3 Determine the smoke parameters/blackness and particle contents of waste gas; 1.4 Determine the content of sulfur dioxide, nitrogen oxides, carbon monoxide and oxygen of pollution source. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Technical standards for sampling of waste gas pollution source; 2.2 Specifications for sampling location of the waste gas pollution source. 2.3 Filling principles of instrument using record; <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Specifications for using the automatic comprehensive test instrument for smoke dust and gas; 		

	<p>3.2 Specifications for using the dual-channel smoke sampler;</p> <p>3.3 Specifications for using of the Ringelmann smoke blackness chart;</p> <p>3.4 Arrangement of sampling points and determination of sampling location and quantity;</p> <p>3.5 Principles and methods of constant potential electrolysis methods.</p> <p>4.0 Essential skills</p> <p>4.1 Self-safety awareness and sense of responsibility;</p> <p>4.2 Learning skills;</p> <p>4.3 Basic communication skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	The waste gas sample of pollution source is collected according to the monitoring industry, the instruments using record is filled in according to the industrial standards and technical specification.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Specifications for sampling location of the waste gas pollution sourcee; 2. Occupational health and safety; 3. Professional competence and sense of responsibility; 4. Occupational codes and standards.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CONDUCT IN-SITU SAMPLING	DUTY NO.	403
TASK TITLE	CONDUCT WORK RELATED TO ORIGINAL SAMPLING RECORD	TASK NO.	4033
PERFORMANCE CRITERIA	The person performing this task must be able to collect, number, summarize and review the original record according to standards and regulations related to inspection items.		
RANGE STATEMENT	<p>The task may be executed in the sampling site under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Basic information such as name of pollution source and project number; 2. Sampling specifications or standard; 3. 3. Sample delivery receipt; 4. Sampling original record. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Collect sampling original record; 2. Judge the normativity of sampling original record; 3. Judge the integrity of sampling original record; 4. Number and summarize the sampling original record. 	<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Fill in the sampling original record normatively; 1.2 Judge the integrity of sampling original record; 1.3 Number and summarize the sampling original record correctly. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Standards or specifications for in-situ sampling of pollution source wastewater; 2.2 Standards or specifications for in-situ sampling of waste gas; 2.3 Standards or specifications for in-situ sampling of industrial enterprise noise. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Purpose, procedures and sampling methods for pollution source wastewater, waste gas and industrial enterprise noise; 		

	<p>3.2 Arrangement principles for in-situ sampling location;</p> <p>3.3 Basic working principles of sampling instruments and equipment;</p> <p>3.4 Normative filling of original record.</p> <p>4.0 Essential skills</p> <p>4.1 Teamwork skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Learning skills;</p> <p>4.4 Skills for normative filling and numbering of original record;</p> <p>4.5 Self-safety awareness.</p> <p>5.0 Mathematical skills</p> <p>5.1 Numerical computation;</p> <p>5.2 Statistics.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	The original records of pollution source wastewater, waste gas and industrial enterprise noise are collected, numbered, summarized and reviewed according to industrial standards and technical specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Archives collection and arrangement; 2. Normative writing requirements; 3. Rigorous and meticulous occupational qualities.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CONDUCT IN-SITU SAMPLING	DUTY NO.	403
TASK TITLE	CONFIRM THE QUANTITY, STORAGE AND TRANSFER OF THE SAMPLES	TASK NO.	4034
PERFORMANCE CRITERIA	The person performing this task must be able to confirm the sample quantity and storage/transfer samples according to relevant standards and regulations.		
RANGE STATEMENT	<p>The task may be executed in the laboratory under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Transfer records; 2. Samples. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Check the category and quantity of samples; 2. Store and transport samples; 3. Transfer and check samples; 4. Fill in sample transfer record. 	<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Distinguish the category of samples; 1.2 Store and transport finished samples; 1.3 Transfer samples; 1.4 Fill in transfer records. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Technical specifications of sample storage and transportation; 2.2 Basic principles of sample quantity confirmation, storage and transfer. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Principles and methods for sample storage; 3.2 Specifications for filling transfer records. <p>4.0 Essential skills</p> <ol style="list-style-type: none"> 4.1 Correct calibration and using skills of instruments and equipment; 4.2 Self-safety awareness and sense of responsibility; 4.3 Learning skills; 		

	4.4 Communication skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The sample quantity confirmation, storage and transfer records are filled in correctly.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational health and safety; 2. Professional competence and sense of responsibility; 3. Occupational codes and standards.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CONDUCT IN-SITU SAMPLING	DUTY NO.	403
TASK TITLE	CHECK, MAINTAIN AND TRANSFER SAMPLING EQUIPMENT	TASK NO.	4035
PERFORMANCE CRITERIA	The person performing this task must be able to check, maintain and transfer the sampling equipment according to relevant requirements, and solve the operation and maintenance problems of the sampling equipment during sampling.		
RANGE STATEMENT	<p>The task may be executed in the laboratory under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Warehouse management computers and USB flash disks; 2. Transportation facilities: vehicles and conveyors; 3. Maintenance tools: clamps, wrench, latex gloves, etc. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Before sampling, fully know the sampling instruments, ensure the normal usage of instruments during sampling and prolong its service life; 2. Guarantee the sanitary conditions of environment and instrument room, prevent dust and keep well-ventilated; 3. Check the accuracy of instrument timely after using; 4. Correct the instrument faults timely after using; 5. Complete handover and checking of samples after sampling, and fill in the <i>Sample Delivery Receipt and Field Quality Control Information Form</i> by the project leader or relevant personnel. 		<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Correct the instrument faults; 1.2 Calibrate the performance of instruments and equipment; 1.3 Check and maintain instruments and transfer work ledger. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 The person performing this task must be able to master the basic principles for checking, maintaining and transferring of sampling equipment in the sampling site; 2.2 Principles for correcting instrument faults; 2.3 Principles for safety management. <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Index detection methods, procedures, purpose and result evaluation; 3.2 Operation of instruments and equipment; 3.3 Abnormalities and rectification measures of sampling equipment; 	

	<p>3.4 Warehouse in/out integrity of instruments and accessories.</p> <p>4.0 Essential skills</p> <p>4.1 Teamwork skills;</p> <p>4.2 Exchange and communication skills;</p> <p>4.3 Adaption, coordination and communication skills;</p> <p>4.4 Continuous learning skills;</p> <p>4.5 Self-safety awareness.</p>
DESCRIPTION OF THE FINAL SKILLS / SERVICE	Sampling equipment is checked, maintained and transferred according to industrial standard, technical specifications and underpinning knowledge.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safety operation specifications; 2. Periodic maintenance, checking and safety detection of sampling equipment.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CLEAN THE SAMPLING SITE	DUTY NO.	404
TASK TITLE	CLEAN THE SAMPLING SITE	TASK NO.	4041
PERFORMANCE CRITERIA	The person performing this task must be able to solve the cleaning and maintenance problems of analytical instruments and glassware according to the cleaning standards on the sampling site, and keep the sampling site clean.		
RANGE STATEMENT	<p>The task may be executed in the sampling site under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Broom, garbage shovel, bucket, mop and rag without fiber shedding (managed in different colors according to cleaning objects), latex gloves, etc. 2. Disinfectant and 75% ethyl alcohol; 3. UV disinfection box; 4. Drying oven. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Guarantee the sanitary conditions of environment and instrument room; 2. Store the instruments in a dry room, place them on a firm and stable work table and avoid corrosion and direct illumination of strong light; 3. Keep the information integrity and cleanliness of sample container label on the sampling site. 	<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Operate the instruments and equipment; 1.2 Calibrate the performance of instruments and equipment on the sampling site; 1.3 Correct faults and do the cleaning. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Operating principles of all equipment; 2.2 Principles for calibrating the performance of instruments and equipment on the sampling site; 2.3 Basic principles of cleaning; <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <ol style="list-style-type: none"> 3.1 Cleaning indexes of the sampling site; 3.2 Cleaning methods of instruments and equipment; 3.3 Infringement management rules for cleaning and maintenance on the sampling site. <p>4.0 Essential skills</p>		

	<p>4.1 Teamwork skills;</p> <p>4.2 Learning skills;</p> <p>4.3 Logical thinking skills;</p> <p>4.4 Skills to discover, analyze and address problems.;</p> <p>4.5 Solid professional knowledge.</p>
DESCRIPTION OF THE FINAL SKILLS / SERVICE	Site cleaning is done according to industrial standards, technical specifications and underpinning knowledge.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation and maintenance of instruments on the sampling site; 2. Cleaning standards of sampling environment; 3. Sample collection and storage methods; 4. Calibration, warehouse-out, maintenance and cleaning of instruments and equipment on site before/after the task.

OCCUPATION	ENVIRONMENTAL MONITORING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CLEAN THE SAMPLING SITE	DUTY NO.	404
TASK TITLE	ENSURE SECURITY OF THE SITE	TASK NO.	4042
PERFORMANCE CRITERIA	The person performing this task must be able to solve major sampling and safety protection problems according to safety protection standards.		
RANGE STATEMENT	<p>The task may be executed in the sampling site under the supervision of a Senior Environmental Monitoring Technician or an Environmental Monitoring Engineer.</p> <p>The tools and equipment to be used include:</p> <ol style="list-style-type: none"> 1. Protection articles for head: nine kinds of articles such as ordinary working cap, dust cap, waterproof cap, cold-proof cap, safety helmet, anti-static cap, high-temperature resistant cap, electromagnetic radiation resistant cap and insect resistant cap; 2. Protective articles for respiratory organ: welding goggles and mask, furnace goggles and mask and anti-impact eye protectors; 3. Protective articles for ears; 4. Protective gloves: waterproof gloves, cold-proof gloves, protective gloves, anti-static gloves, etc. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Store the sampling instruments in a dry and well-ventilated place far away from electricity and fire; 2. Conduct checking and safety inspection on instruments of warehouse periodically; 3. Identify the safety hazards and solutions of workplace; 4. Provide analysis and suggestions for abnormalities; 5. Store and check the safety protective articles of workplace and implement classified management; 6. Organize occupational health and safety inspection. 		<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Master the safety protection of instruments; 1.2 Identify the safety hazards and solutions of workplace. <p>2.0 Principle</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none"> 2.1 Requirements of technical specifications; 2.2 Sampling cleaning principles. <p>3.0 Theories</p> <p>The person performing this task must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Environmental risk evaluation method; 3.2 Sampling quality control and safety knowledge. <p>4.0 Essential skills</p> <ol style="list-style-type: none"> 4.1 Teamwork skills; 4.2 Exchange and communication skills; 4.3 Emergency treatment skills; 4.4 Continuous learning skills. 	

DESCRIPTION OF THE FINAL SKILLS / SERVICE	Field safety protection and emergency treatment are carried out according to industrial standards, technical specifications and underpinning knowledge.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation and maintenance of instruments on the sampling site; 2. Safety operation specifications for sampling of wastewater and waste gas; 3. Periodic maintenance and safety test on in-situ instruments and equipment; 4. Management rules for occupational health and safety of sampling and testing posts; 5. Identify the safety hazards and solutions of workplace; 6. Occupational health and safety training.

**APPENDIX: DACUM CHARTS FOR ENVIRONMENTAL MONITORING TECHNICIAN
– NTA LEVEL 4**

DUTIES	TASKS	ENABLERS
<p>1.0 Obtain the in-situ sampling plan</p>	<p>1.1 Formulate the sampling schedule. 1.2 Contact customers. 1.3 Investigate the sampling site.</p>	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • Being familiar with and abiding by the environmental laws, regulations and standards • Being familiar with the sampling methods and standards of monitoring items • Selection of sampling points and sampling duration, frequency and schedule • Requirements for sampling and production and operating activities • Safety guarantee skills for sampling and relevant work • Requirements for sampling and relevant working conditions • Skills in field research and data collection • Language expression and communication skills • Customer service skills • Teamwork skills • Skills in logical thinking, problem identification and solving <p>Tools and equipment</p> <ul style="list-style-type: none"> • PPE, such as lab coat, rubber gloves, protective mask and reflective vest • Pens and notebooks • Telephones • Automobiles • Computers and printers • First aid tools <p>Materials</p> <ul style="list-style-type: none"> • Labels • Glassware • Chemical reagents • Paper records <p>Worker behaviors</p>

		<ul style="list-style-type: none"> • Have teamwork spirit and be honest, trustworthy, careful and meticulous.
2.0 Prepare and calibrate sampling equipment	<p>2.1 Prepare the sampling tools and equipment and fill in the instrument warehouse in/out records.</p> <p>2.2 Inspect and calibrate using conditions of the air sampler, the sound level meter and other instruments.</p> <p>2.3 Use the sampling instrument correctly</p> <p>2.4 Prepare sampling consumables and medicament and fill in the warehouse in/out records.</p>	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • Being familiar with and abiding by the environmental laws, regulations and standards • Being familiar with the self-inspection method and performance test of sampling instruments • Being familiar with operation and calibration of air sampler and sound level meter • Being familiar with instrument fault handling • Being familiar with the correct filling of instrument/equipment calibration and maintenance record • Selection and preparation of consumables for different monitoring items • Preparation of sampling medicament • Specifications for filling the consumables/medicament warehouse in/out records • Teamwork skills • Communication skills • Learning skills • Correct using skills of instruments and equipment • Abnormality handling skills • Self-safety awareness and sense of responsibility <p>Tools and equipment</p> <ul style="list-style-type: none"> • PPE, such as lab coat, rubber gloves and protective mask • Sampling instruments, such as air sampler and sound level meter • Electronic scale • Smoke gas (dust) tester • Containers, measuring instruments and other glassware • First aid tools <p>Materials</p>

		<ul style="list-style-type: none"> • Labels • Glassware • Chemical reagents • Paper records <p>Worker behaviors</p> <ul style="list-style-type: none"> • Have teamwork spirit and be honest, trustworthy, careful and meticulous.
<p>3.0 Conduct in-situ sampling</p>	<p>3.1 Take samples of wastewater of pollution source.</p> <p>3.2 Take samples of waste gas of pollution source.</p> <p>3.3 Conduct work related to original sampling record.</p> <p>3.4 Confirm the quantity, storage and transfer of the samples.</p> <p>3.5 Check, maintain and transfer sampling equipment.</p>	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • Being familiar with and abiding by the environmental laws, regulations and standards • Using method of wastewater sampling apparatus (bottle) of pollution source • Mastering the quality assurance of wastewater sampling • Being familiar with the using methods of gas sampling instrument of pollution source • Being familiar with the arrangement mode of pollution source sampling points, determination methods of sampling location and quantity, as well as sampling time and frequency • Mastering the determination method and data calculation of flue gas parameters • Purpose, procedures and sampling methods for pollution source wastewater, waste gas and industrial enterprise noise; • Basic working principles of sampling instruments and equipment • Normative filling of original records • Being familiar with the classification and quantity determination methods of collected samples • Being familiar with the basic mode of sample storage and transportation • Mastering the filling method of sample transfer record

		<ul style="list-style-type: none"> • Being familiar with the normative filling of instrument using record • Teamwork skills • Communication skills • Learning skills • Correct using skills of sampling instruments and equipment • Abnormality handling skills • Self-safety awareness and sense of responsibility <p>Tools and equipment</p> <ul style="list-style-type: none"> • PPE, such as safety helmet, safety boots, gloves, mask, lab coat and reflective vest • Sampling instruments • Sample storage and transport equipment <p>Materials</p> <ul style="list-style-type: none"> • Sampling consumables and medicament • Sampling record form • Sample transfer record • Using record of sampling instruments <p>Worker behaviors</p> <ul style="list-style-type: none"> • Teamwork spirit, integrity, quality and safety awareness
4.0 Clean the sampling site	4.1 Clean the sampling site. 4.2 Ensure security of the site.	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • Being familiar with and abiding by the environmental laws, regulations and standards • Being familiar with the environmental risk evaluation method of field test • Mastering the implementation of safety measures • Having the emergency treatment capacity • Methods for sampling quality control and safety knowledge • Being familiar with the cleaning indexes of the sampling site

		<ul style="list-style-type: none"> • Being familiar with the operation and cleaning methods of instruments and equipment • Teamwork skills • Communication skills • Learning skills • Correct using skills of sampling instruments and equipment • Abnormality handling skills • Self-safety awareness and sense of responsibility <p>Tools and equipment</p> <ul style="list-style-type: none"> • Personal protection articles such as safety helmet, safety boots, gloves, mask, lab coat and reflective vest • Sampling instruments • Cleaning tools for site and sampling instruments <p>Materials</p> <ul style="list-style-type: none"> • Safety materials and notices • Cleaning materials • Cleaning liquids • Cleaning and maintenance records <p>Worker behaviors</p> <ul style="list-style-type: none"> • Teamwork spirit, integrity, quality and safety awareness
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