

Position Description Form (PDF)

College: Sir Sandford Fleming

Incumbent's Name:

Position Title: CAWT Research Technologist

Payband: I

Position Code/Number (if applicable): S00549

Scheduled No. of Hours____35____

Appointment Type: ____X____12 months ____less than 12 months

Supervisor's Name and Title: Director, CAWT

Completed by: Jennifer Andersen

Effective Date: June 14, 2022

Last Review Date: September 2022

Signatures:

Incumbent:

Date:

(Indicates the incumbent has read and understood the PDF)

Supervisor:

Date:

Instructions for Completing the PDF

1. Read the form carefully before completing any of the sections.
2. Answer each section as completely as you can based on the typical activities or requirements of the position and not on exceptional or rare requirements.
3. If you have any questions, refer to the document entitled "A Guide on How to Write Support Staff Position Description Forms" or contact your Human Resources representation for clarification.
4. Ensure the PDF is legible.
5. Responses should be **straightforward and concise using simple factual statements.**

Position Summary

Provide a concise description of the overall purpose of the position.

The CAWT Research Technologist will install, decommission, and operate a wide range of experiments, technologies and laboratory instruments in the Centre for Advancement of Water and Wastewater Technologies (CAWT) at the Frost Campus and remote locations. The incumbent will implement and execute a variety of research projects by following project outlines and test plans following standard methods, procedures and as developed by Research Scientists.

The incumbent will conduct laboratory analyses as required for water and wastewater treatment research in an accredited lab (ISO 17025:2017) within set timelines and in adherence to established methods. They will develop and validate laboratory methods and procedures necessary for the analytical needs of a research project, including keeping detailed records, developing standard operating procedures, work instructions, and health and safety protocols in consultation with the CAWT Manager, CAWT Laboratory Coordinator, and Research Scientist.

They will ensure integrity of data collected through laboratory methods and procedures and ensure it is recorded and backed up in accordance with accepted laboratory procedures. They will follow quality control (assurance) measures to ensure repeatability and data integrity. They will be responsible for maintaining and calibrating laboratory equipment and infrastructure, as well as undertaking troubleshooting and repair work. They will coordinate with external parties including vendors and manufacturers for services, repairs, troubleshooting, and to obtain quotes as required for project and analytical needs.

The incumbent will organize the work of laboratory technicians, students, and others as necessary to meet project deliverables. They will ensure safe, accurate and effective use of facilities, equipment and instrumentation, and that all health and safety procedures are followed for the protection of students, staff, faculty, and visitors. They will provide training on analytical methods, lab practices, and project operations to student workers, co-ops, interns, Lab Technicians, and visitors.

Duties and Responsibilities

Indicate as clearly as possible the significant duties and responsibilities associated with the position. Indicate the approximate percentage of time for each duty. Describe duties rather than detailed work routines.

	Approximate % of time annually*
1. Project work. Participate in partner meetings and project planning sessions to provide feedback in relation to methodologies and modification of technologies, experimental designs, and test plans to conduct bench scale, pilot or full-scale installations. Plan, install, execute and decommission a range of experiments. Adapt and modify current facilities and equipment to accommodate and integrate new techniques and projects. Draft budget estimates for project equipment and supply purchases. Purchase equipment and supplies under the approval of the CAWT Manager, within set timelines. Operate and troubleshoot technologies and experiments. Work with Physical Resources, other departments at Fleming College and external contractors on installation and set-up of new technologies and equipment and decommissioning of projects and equipment. Assist in writing final technical reports and project summaries.	45%

2. Laboratory Analysis & Method Validation Operate and develop analytical laboratory methods, including the development of standard operating procedures and work instructions, on a wide range of instruments based on Standard Methods and ISO 17025:2017 guidelines, and as required for an ISO accredited testing facility. Set-up, operate and maintain bench and analytical instrumentation including, but not limited to: Total Organic Carbon Analyzer, UV/Vis Spectrophotometer, Titrator, multimeters, microbiological testing equipment, incubators, heating blocks, chemical digestion equipment, respirometer, fumehoods, sewage pumps, peristaltic pumps, flow meters, temperature recording devices, environmental chambers, walk-in fridges, autosamplers, autoclaves, muffle furnace, drying oven, and other laboratory equipment. Perform accredited and non-accredited analysis of, but not limited to: pH, turbidity, dissolved oxygen, conductivity, oxidation reduction potential, alkalinity, biomethane potential, Biochemical oxygen demand (total and soluble), chemical oxygen demand (total and soluble), total and free chlorine, total and volatile suspended solids, total and total volatile solids, ammonia, total organic carbon, dissolved organic carbon, E. coli, total coliforms, fecal coliforms, heterotrophic plate counts, volatile fatty acids, and other laboratory methods. Maintain CALA PT proficiency through lab analysis. Perform method validation and development under ISO 17025:2017 requirements and under the guidance of the CAWT Manager and CAWT Laboratory Coordinator. Perform data entry and data validation by required deadlines. Develop and review final data spreadsheets to ensure accuracy and unambiguity. Ensure data integrity and security to include multiple backups both onsite and offsite. Organize and implement quality control (assurance) procedures and Standard Operating Procedures (SOPs) that will ensure and maintain high quality of data and data reporting system. Repair, maintain and troubleshoot high-end analytical instrumentation, infrastructure and equipment, including coordinating the work of vendors and manufacturers for service requests, repairs and obtaining quotes.	35%
3. Inventory & Purchases Maintain laboratory inventory levels by coordinating with CAWT staff and students. Track equipment purchases and maintain purchase logs. Conduct research on appropriate material, products and supplies for lab analysis and experiments. Obtain quotes, and follow up with suppliers, inspect orders for completion. Purchase laboratory supplies under the approval of the CAWT Manager and under the guidance of the CAWT Laboratory Coordinator.	10%
4. Training Facilitate training/orientation sessions/demonstrate procedures for new lab staff, student workers, placement workers, and technicians. Informing them of procedures, policies and best practices. Provide day-to-day guidance for student workers and lab technicians. Train CAWT staff and students on project operations and analytical methods. Coordinate training of new student hires, including online requirements and laboratory training modules. Provide tours of facilities and safety equipment.	5%

5. Other duties as assigned.	5%
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* To help you estimate approximate percentages:

½ hour a day is 7%

1 hour a day is 14%

1 hour a week is 3%

½ day a week is 10%

½ day a month is 2%

1 day a month is 4%

1 week a year is 2%

1. Education

A. Check the box that best describes the **minimum** level of **formal** education that is required for the position and specify the field(s) of study. Do not include on-the-job training in this information.

- | | | |
|--|---|---|
| ☐ Up to High School or equivalent | ☐ 1 year certificate or equivalent | ☐ 2 year diploma or equivalent |
| ☐ Trade certification or equivalent | ☒ 3 year diploma / degree or equivalent | ☐ 4 year degree or 3 year diploma / degree plus professional certification or equivalent |
| ☐ Post graduate degree (e.g. Masters) or 4 years degree plus professional certification or equivalent | | |
| ☐ Doctoral degree or equivalent | | |

Field(s) of Study:

Analytical Chemistry, Organic Chemistry, Biochemistry, Molecular Biology, Microbiology, Toxicology, or other similar science-related discipline.

B. Check the box that best describes the requirement for specific course(s), certification, qualification, formal training or accreditation in addition to and not part of the education level noted above and in the space provided specify the additional requirement(s). Include only the requirement that would typically be included in the job posting and would be acquired prior to the commencement of the position. Do not include courses that are needed to maintain a professional designation.

☒ No additional requirements

☐ Additional requirements obtained by course(s) of a total of 100 hours or less

☐ Additional requirements obtained by course(s) of a total between 101 and 520 hours

- ☐ Additional requirements obtained by course(s) of a total of more than 520 hours



2. Experience

Experience refers to the minimum time required in prior position(s) to understand how to apply the techniques, methods and practices necessary to perform this job. This experience may be less than experience possessed by the incumbent, as it refers only to the minimum level required on the first day of work.

Check the box that best captures the typical number of year of experience, in addition to the necessary education level, required to perform the responsibilities of the position and, in the space provided, describe the type of experience. Include any experience that is part of a certification process, but only if the work experience or on-the-job training occurs after the conclusion of the educational course or program.

☐ Less than one (1) year	
☐ Minimum of one (1) year	
☐ Minimum of two (2) years	
☒ Minimum of three (3) years	• Practical, related working experience in analytical methods and with analytical instrumentation: DO probes, handheld multi-meters, titrators, biochemical oxygen demand, digesters, autoclaves (as examples) • Working knowledge of analytical chemistry techniques including analysis of water and / or wastewater. • Experience working on research projects, including set up, execution and decommission. • Strong interpersonal, planning, time management and communication skills required. Practical experience in organizational techniques and inventory control. • Intermediate skills with spreadsheets and word processing.
☐ Minimum of five (5) years	
☐ Minimum of eight (8) years	

3. Analysis and Problem Solving

This section relates to the application of analysis and judgement within the scope of the position.

The following charts help to define the level of complexity involved in the analysis or identification of situations, information or problems, the steps taken to develop options, solutions or other actions and the judgement required to do so.

Please provide up to three (3) examples of analysis and problem solving that are regular and recurring and, if present in the position, up to two (2) examples that occur occasionally:

#1 regular & recurring	
Key issue or problem encountered.	Changes in experimental testing plans (Ex. Request to extend testing weeks)
How is it identified?	Through conversations with the CAWT Manager, Research Scientist or Industry Partner, changes may be requested to the objectives of a project, either through extended analysis requests or prolonged testing weeks; all while keeping within the same timeline. These requests will need to be planned and detailed out in order to accommodate and stay within the timeline.
Is further investigation required to define the situation and/or problem? If so, describe.	Incumbent must investigate the change request thoroughly prior to taking action by determining if changes can be made, and what those changes may be (reducing other milestones, reducing frequency of lab tests, etc.).
Explain the analysis used to determine a solution(s) for the situation and/or problem.	Incumbent will use accumulated knowledge to evaluate the project change requests; revising timelines to determine what can be done. In consultation with the CAWT Manager, Research Scientist, and Industry partner, the incumbent will determine best course of action for resolving problem.
What sources are available to assist the incumbent finding solution(s)? (eg. past practices, established standards or guidelines).	The Research Scientist will develop a test plan from which change requests can be evaluated further. The CAWT Manager, Research Scientists and industry partner will be important resources for solving these problems and in making necessary approvals prior to the work beginning.

3. Analysis and Problem Solving**#2 regular & recurring**

Key issue or problem encountered

Analyze numerous water / wastewater samples for many different parameters, for multiple ongoing projects in a space of only two weeks. Calibrate and prepare reagents for analysis, determining through experimentation potential interferences that may occur according to sample types. Adjusting chemistry where necessary.

How is it identified?

Under the guidance of the CAWT Manager and CAWT Lab Coordinator priorities for samples analyzed and timelines for analysis will be assigned. Using this information, the incumbent will complete analysis involving multiple instruments and following standard operating protocols simultaneously.

Is further investigation required to define the situation and/or problem? If so, describe.

If variables change i.e. increased solids, adjustments and changes to the protocol must be made to complete analysis in the allotted time and as required following standard testing methodologies. This could mean adding steps to the protocol or adjusting chemical make-up of the samples being tested.

Explain the analysis used to determine a solution(s) for the situation and/or problem.

Given time, tests and experiments using a modified protocol will be performed. The incumbent will use the results of these tests to make the necessary changes, i.e. adding a new step to the procedure, or learning a new standard method.

Set up quality control checks to detect errors in sampling and analysis as they occur and making adjustments based on results.

What sources are available to assist the incumbent finding solution(s)? (eg. past practices, established standards or guidelines).

In most cases there are existing protocols that suit the instrumentation at hand, but original research and adaptations to existing lab methods must be done to arrive at solutions for many problems. Analytical Chemistry journals and standard references are used periodically as a starting point.

#3 regular & recurring

Key issue or problem encountered

How is it identified?

Is further investigation required to define the situation and/or problem? If so, describe.

Explain the analysis used to determine a solution(s) for the situation and/or problem.

What sources are available to assist the incumbent finding solution(s)? (eg. past practices, established standards or guidelines).

3. Analysis and Problem Solving

#1 occasional (if none, please strike out this section)

Key issue or problem encountered

Troubleshoot CAWT equipment. Ex. effluent not leaving pipe – pooling on surface, lack of aeration during winter operation.

How is it identified?

Deviation – minor or major – from normal operations (e.g. odours, pooling of effluent, plants dying, lack of expected treatment, other problems or issues).

Is further investigation required to define the situation and/or problem? If so, describe.

Incumbent must investigate the situation thoroughly prior to taking action.

Explain the analysis used to determine a solution(s) for the situation and/or problem.

Incumbent will use existing cumulative knowledge and experience of systems in conjunction with knowledge from other Fleming staff including Physical Resources, Research Scientists and Faculty to piece together what the issues are and how to resolve them.

What sources are available to assist the incumbent finding solution(s)? (eg. past practices, established standards or guidelines).

Current Fleming Physical Resource staff, Research Scientists and Faculty will be an important resource on historical knowledge of the wetland system and ponds and for expanding current knowledge of the system and the issues that may be presented (electrical, plumbing, etc.)

#2 occasional (if none, please strike out this section)

Key issue or problem encountered

Troubleshoot installation of new technologies and equipment.

Process includes researching existing technologies and equipment prior to installation, adapting and modifying existing equipment and / or technologies to ensure they meet installation requirements. The final result is the installation of a technology that suits the scientific needs of the laboratory and / or project along with College requirements (CSA, ESA, etc.).

How is it identified?

Technology cannot be installed or will not operate in its current state. For example, if a technology or piece of equipment does not have the correct ESA/CSA approvals, or is missing components that may be required, for example piping to exhaust biogas. Alternatively, CAWT Manager, CAWT Laboratory Coordinator, Research Scientists, Partners, or client may request new technology or piece of equipment.

Is further investigation required to define the situation and/or problem? If so, describe.

Incumbent can use experience and knowledge to make recommendations, incumbent will perform research to ensure available options meet project and college requirements.

Explain the analysis used to determine a solution(s) for the situation and/or problem.

Incumbent may need to work with other departments or contractors to ensure proper designs are created, researched and modified prior to installation or during troubleshooting; all activities under the direction and guidance of CAWT Manager, CAWT Laboratory Coordinator, or Research Scientists.

What sources are available to assist the incumbent finding solution(s)? (eg. past practices, established standards or guidelines).

Incumbent in consultation with Research Scientists, the CAWT Manager, and CAWT Laboratory Coordinator will decide if changes are required. Incumbent assesses the procedure and decides if the system is working properly.

4. Planning/Coordinating

Planning is a proactive activity as the incumbent must develop in advance a method of acting or proceeding, while coordinating can be more reactive in nature.

Using the following charts, provide up to three (3) examples of planning and/or coordinating that are regular and recurring and, if present in the position, up to two (2) examples that occur occasionally:

#1 regular & recurring	
List the project and the role of the incumbent in this activity.	Create plans for installation of new technologies and equipment. Process includes developing budget estimates, timelines and allocating resources for the installation or modification of new and current technologies / equipment. Techniques must be adapted to laboratory settings as well as field settings. The final result is the installation of a technology that suits the scientific needs within financial and logistical constraints outlined.
What are the organizational and/or project management skills needed to bring together and integrate this activity?	Incumbent may need to work with other departments to ensure proper designs are created, planned, budgeted and implemented within set timelines and under the direction and guidance of CAWT Research Scientists and the CAWT Manager. Progress, purchases, timelines and expenses will all need to be tracked on a regular basis
List the types of resources required to complete this task, project or activity.	Instrument Manuals, Standard Methods, MOE procedures, Internet sources, Liaise with outside professionals and internal departments at Fleming College.
How is/are deadline(s) determined?	Deadline is determined by CAWT Manager and CAWT Laboratory Coordinator.
Who determines if changes to the project or activity are required? And who determines whether these changes have an impact on others? Please provide concrete examples.	Incumbent in consultation with Research Scientists, CAWT Laboratory Coordinator, and the CAWT Manager decides if changes are required. Incumbent plans and assesses the procedure and decides if the system is working properly.

4. Planning/Coordinating

#2 regular & recurring

List the project and the role of the incumbent in this activity.

Planning and coordinating project activities (i.e. scheduled sample collection) for numerous projects

What are the organizational and/or project management skills needed to bring together and integrate this activity?

Incumbent needs to be very well organized and have a good understanding of project requirements, and timelines. They must plan out their workload each week in advance to identify when these tasks will be completed.

List the types of resources required to complete this task, project or activity.

Test plans, project outlines, project proposals, activity schedules.

How is/are deadline(s) determined?

Deadlines are determined by CAWT Manager, Research Scientist, and the industry partner.

Who determines if changes to the project or activity are required? And who determines whether these changes have an impact on others? Please provide concrete examples.

Incumbent is responsible for coordinating laboratory experiments under supervision of CAWT Manager, CAWT Laboratory Coordinator and the Research Scientist.

Incumbent in consultation with CAWT Manager, Research Scientist and industry partner decides if changes are required.

#3 regular & recurring

List the project and the role of the incumbent in this activity.

The incumbent needs to plan and coordinate instrumental analyses to find the most efficient way to execute analyses.

What are the organizational and/or project management skills needed to bring together and integrate this activity?

Incumbent needs to be familiar with running complex analytical equipment and planning and coordinating analytical runs and coordinating with ongoing experiments and research activities in the CAWT.

List the types of resources required to complete this task, project or activity.

Instrument manuals, standard methods,

How is/are deadline(s) determined?

Deadlines are determined by CAWT Manager and CAWT Laboratory Coordinator.

Who determines if changes to the project or activity are required? And who determines whether these changes have an impact on others? Please provide concrete examples.

Incumbent in consultation with CAWT Manager and CAWT Laboratory Coordinator decides if changes are required. Incumbent tests and assesses the procedure and decides if the system is working properly.

4. Planning/Coordinating

~~#1 occasional (if none, please strike out this section)~~

List the project and the role of the incumbent in this activity.

What are the organizational and/or project management skills needed to bring together and integrate this activity?

List the types of resources required to complete this task, project or activity.

How is/are deadline(s) determined?

Who determines if changes to the project or activity are required? And who determines whether these changes have an impact on others? Please provide concrete examples.

~~#2 occasional (if none, please strike out this section)~~

List the project and the role of the incumbent in this activity.

What are the organizational and/or project management skills needed to bring together and integrate this activity?

List the types of resources required to complete this task, project or activity.

How is/are deadline(s) determined?

Who determines if changes to the project or activity are required? And who determines whether these changes have an impact on others? Please provide concrete examples.

5. Guiding/Advising Others

This section describes the **assigned responsibility** of the position to guide or advise others (e.g. other employees, students). Focus on the actions taken (rather than the communication skills) that directly assist others in the performance of their work or skill development.

Though Support Staff cannot formally "supervise" others, there may be a requirement to guide others using the incumbent's job expertise. This is beyond being helpful and providing ad hoc advice. It must be an assigned responsibility and must assist or enable others to be able to complete their own tasks.

Check the box(es) that best describe the level of responsibility assigned to the position and provide an example(s) to support the selection, including the positions that the incumbent guides or advises.

Regular & Recurring	Occasional	Level	Example
X	☐	Minimal requirement to guide/advise others. The incumbent may be required to explain procedures to other employees or students.	Incumbent will be required to explain laboratory procedures to student workers, new lab technicians and others that may be using CAWT facilities.
X	☐	There is a need for the incumbent to demonstrate correct processes/ procedures to others so that they can complete specific tasks.	Demonstrates safe and proper use of chemicals and analytical equipment. Provides training on project operations (ex. sample collection)
☐	X	The incumbent recommends a course of action or makes decisions so that others can perform their day-to-day activities.	Reviews and develops safety protocols prior to the start of a project relating but not limited to sample collection and technology operations. Coordinates the efforts of project team members (students and technicians), monitoring tasks and ensuring project stays on schedule.

☐ ☐ The incumbent is an active participant and has ongoing involvement in the progress of others with whom he/she has the responsibility to demonstrate correct processes/procedures or provide direction.

☐ ☐ The incumbent is responsible for allocating tasks to others and recommending a course of action or making necessary decisions to ensure the tasks are completed.

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6. Independence of Action

Please illustrate the type of independence or autonomy exercised in the position. Consideration is to be given to the degree of freedom and constraints that define the parameters in which the incumbent works.

What are the instructions that are typically required or provided at the beginning of a work assignment?	
Regular and Recurring	Occasional (if none, please strike out this section)
Incumbent will receive direction from CAWT Manager and CAWT Laboratory Coordinator with daily supervisory contact. The Manager and / or CAWT Laboratory Coordinator will request specific analyses and the incumbent will follow appropriate laboratory protocols. The Research Scientist will outline required project operations through experimental plans. Where such protocols are not in use in the CAWT, the incumbent may be asked to research, develop and validate appropriate analytical methods under the guidance of the CAWT Laboratory Coordinator, or health and safety protocols under the guidance of the CAWT Manager and the CAWT Laboratory Coordinator.	

What rules, procedures, past practices or guidelines are available to guide the incumbent?	
Regular and Recurring	Occasional (if none, please strike out this section)
Work is reviewed daily to several times weekly depending on the task. Feedback is given daily to several times weekly depending on the activities from CAWT Manager and / or CAWT Laboratory Coordinator. Instrument manuals only supply operational info, methods, protocols and guidelines are created by research and drawing on incumbent experience.	Standard methods (MOE, USEPA) and additional sources as identified by CAWT Manager and the CAWT Laboratory Coordinator are available. Scientific journals and a small number of texts can be referenced to aid in the creation of new analytical techniques.

How is work reviewed or verified (eg. feedback from others, work processes, Supervisor)?	
Regular and Recurring	Occasional (if none, please strike out this section)
Work is reviewed daily to several times weekly depending on the task. Feedback is given daily to several times weekly depending on the activities from CAWT Manager and / or CAWT Laboratory Coordinator.	Internal and external audits are performed as a part of our ISO 17025:2017 accreditation. The results of this provide feedback on an annual / biannual basis of lab performance.

6. Independence of Action

Describe the type of decisions the incumbent will make in consultation with someone else other than the Supervisor?	
Regular and Recurring	Occasional (if none, please strike out this section)
Equipping lab as needed for project work and will require ordering appropriate equipment and supplies – requiring consultation with outside supply companies, vendors and outside labs.	

Describe the type of decisions that would be decided in consultation with the Supervisor.	
Regular and Recurring	Occasional (if none, please strike out this section)
Permission to access funds. All health and safety as well as security issues requiring managerial attention or intervention.	Situations where incumbent feels faculty or student demands may infringe on policies or rules of College.

Describe the type of decisions that would be decided by the incumbent.	
Regular and Recurring	Occasional (if none, please strike out this section)
Finding efficiencies in routine laboratory operations. Implementing installation and decommissioning of projects (technologies, experiments) Analysis of samples as needed to ensure data assurance and integrity	Research methodologies and adapt existing instrumentation to perform required analysis.

7. Service Delivery

This section looks at the service relationship that is an assigned requirement of the position. It considers the required manner in which the position delivers service to customers. It is not intended to examine the incumbent's interpersonal relationship with those customers and the normal anticipation of what customers want and then supplying it efficiently. It considers how the request for service is received and the degree to which the position is required to design and fulfil the service requirement. A "customer" is defined in the broadest sense as a person or groups of people and can be internal or external to the College.

In the table below, list the key service(s) and its associated customers. Describe how the request for service is received by the incumbent, how the service is carried out and the frequency.

Information on the service		Customer	Frequency (D, W, M. I)*
How is it received?	How is it carried out?		
To provide results of lab tests	Execute lab experiments, written reports, lab protocols and methods	CAWT staff	D
Provide advice and information on proposed research.	Research required information and provide advise required	CAWT staff, Laboratory Coordinator, CAWT Manager	I
New experiment/protocol required	Develop a new experiment/protocol to meet customer needs	CAWT Manager, Research Scientists and project industry partners.	M
New method required	Develop a new method/protocol to meet lab needs	CAWT Manager, Laboratory Coordinator, Research Scientist	I
To install / decommission a new technology or piece of equipment	Develop and research existing installations to gather information necessary for the planning and implementation of designs	CAWT Manager, Research Scientists	M

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To provide quality data that is reliable and meets ISO requirements	Develop QC charts and checks to validate data	CAWT Laboratory Coordinator	M
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* D = Daily W = Weekly M = Monthly I = Infrequently

8. Communication

In the table below indicate the type of communication skills required to deal effectively with others. Be sure to list both verbal (e.g. exchanging information, formal presentations) and written (e.g. initiate memos, reports, proposals) in the section(s) that best describes the method of communication.

Communication Skill/Method	Example	Audience	Frequency (D, W, M, I)*
Exchanging routine information,	Exchange information	CAWT staff, CAWT Manager	D
Explanation and interpretation of information or ideas	Purchase chemicals and equipment. To learn of new equipment and techniques in water / wastewater field.	External sources, suppliers, vendors	M
Imparting technical information and advice	To advise how to complete their analytical chemistry goals and to aid in the repair and calibration of equipment	CAWT Staff, CAWT Manager, CAWT Laboratory Coordinator	D
	Demonstrates Safe and proper use of chemicals and analytical equipment	CAWT staff, students, visitors	D
	Explains research experiment results and progress to non-technical individuals	Industry clients	M
Instructing or training			
Obtaining cooperation or consent			
Negotiating			

* D = Daily W = Weekly M = Monthly I = Infrequently

9. Physical Effort

In the tables below, describe the type of physical activity that is required on a regular basis. Please indicate the activity as well as the frequency, the average duration of each activity and whether there is the ability to reduce any strain by changing positions or performing another activity. Activities to be considered are sitting, standing, walking, climbing, crouching, lifting and/or carrying light, medium or heavy objects, pushing, pulling, working in an awkward position or maintaining one position for a long period.

Physical Activity	Frequency (D, W, M, I)*	Duration			Ability to reduce strain		
		< 1 hr at a time	1 - 2 hrs at a time	> 2 hrs at a time	Yes	No	N/A
Standing	D			X		X	
Lifting equipment (vortex, plates), instruments	W	X				X	
Lifting equipment (water bath, incubator) and instruments	M	X					

* D = Daily W = Weekly M = Monthly I = Infrequently

If lifting is required, please indicate the weights below and provide examples.

X Light (up to 5 kg or 11 lbs)

X Medium (between 5 to 20 kg or 11 to 44 lbs)

Heavy (over 20 kg or 44 lbs)

Equipment (vortex, plates)
Equipment (water bath, incubator) and instruments

10. Audio Visual Effort

Describe the degree of attention or focus required to perform tasks taking into consideration:

- the audio/visual effort and the focus or concentration needed to perform a task and the duration of the task, including breaks (eg. up to 2 hours at one time including scheduled breaks)
- impact on attention or focus due to changes to deadlines or priorities
- the need for the incumbent to switch attention between tasks (eg. multi-tasking where each task requires focus or concentration)
- whether the level of concentration can be maintained throughout the task or is broken due to the number of disruptions

Provide up to three (3) examples of activities that require a higher than usual need for focus and concentration.

Activity #1	Frequency (D, W, M, I)*	Average Duration		
		Short < 30 mins	Long up to 2 hrs	Extended > 2 hrs
Experiment performance	D			X
Can concentration or focus be maintained throughout the duration of the activity? If not, why? ☒ Usually ☐ No There are occasional interruptions from staff.				

Activity #2	Frequency (D, W, M, I)*	Average Duration		
		Short < 30 mins	Long up to 2 hrs	Extended > 2 hrs
Calibrating precision instruments	D		X	
Can concentration or focus be maintained throughout the duration of the activity? If not, why? ☒ Usually ☐ No				

Activity #3	Frequency (D, W, M, I)*	Average Duration		
		Short < 30 mins	Long up to 2 hrs	Extended > 2 hrs

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Working on computers requires higher than usual need for focus and concentration when completing complex and highly analytical data analysis, calculations and reconciliations.	D			X
Can concentration or focus be maintained throughout the duration of the activity? If not, why? ☒ Usually ☐ No				

* D = Daily W = Weekly M = Monthly I = Infrequently

11. Working Environment

Please check the appropriate box(es) that best describes the work environment and the corresponding frequency and provide an example of the condition.

Working Conditions	Examples	Frequency (D, W, M, I)*
X acceptable working conditions (minimal exposure to the conditions listed below)		
☐ accessing crawl spaces/confined spaces		
☐ dealing with abusive people		
☐ dealing with abusive people who pose a threat of physical harm		
X difficult weather conditions	Occasionally need to work in wet, snow or cold temperatures to perform field procedures	I
☐ exposure to extreme weather conditions		
X exposure to very high or low temperatures (e.g. freezers)	Work in CAWT environmental chamber (-40C)	I
X handling hazardous substances	Low dose exposure to chemicals is probable (hazardous) – Acids(Corrosives),(Alkalis) Bases, poison i.e. Cyanide, Arsenic, Solvents ie Toluene, Chloroform, etc.. Deals with radio-Active sources in instrumentation, Some UV and RF exposure as well. Incumbent works with high voltage equipment.	D
X smelly, dirty or noisy environment	Some procedures requiring use of fume hoods to reduce odours do not eliminate them; exposure to chemicals; instruments are just below noise threshold for hearing protection;	W
X travel	To field locations locally and in remote locations (on average local travel – within 100 km - is once every two	I

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	months; travel to remote locations – hundreds of kms - is approximately once per year)	
X working in isolated or crowded situations	on a weekly basis, the incumbent may work alone in the laboratories, greenhouse, wetlands, and / or ponds.	D
☐ other (explain)		

* D = Daily M = Monthly W = Weekly I = Infrequently