

## Water Quality Profile

Subcategory	Comp. ID	Competency Statement	Importance Type
<b>TECHNICAL COMPETENCIES</b>			
<b>Conducting environmental impact assessments</b>			
	5	Consults with stakeholders (including regulators, municipalities, public, interest groups, indigenous peoples, NGOs, etc.) to gather information regarding the perceived impacts of development activities on communities, the environment and natural resources.	3
	7	Assesses qualitative and quantitative environmental issues, risks or problems, including their cumulative effect and corresponding economic, social and cultural impacts.	3
	9	Prepares environmental impact assessment report(s) that may include mitigation, environmental protection, and recovery plans.	3
<b>Conducting environmental site assessments (ESA - Phase 1 and Phase 2)</b>			
	10	Identifies the scope of the site assessment (phase 1 and 2) project, including identification of the standards to be followed.	3
	11	Reviews historical records for the site (e.g. site plans, fire insurance maps, legal title searches, business directories, air photos, satellite images, etc.) to determine previous land use.	3
	12	Carries out visual inspection of site and neighbouring properties to inventory/identify current operations, evidence of discharges, visible contamination, buried tanks, dumping, etc.	3
	13	Collects related information from key stakeholders (e.g. owners and staff, municipalities, regulators) regarding land use, facility operations, permits, relevant legislation, etc.	3
	14	Conducts investigation, sampling, screening, and analysis (including geophysical mapping) activities of landforms, soil, ground water, sediments, airborne contaminants, etc., as required.	3
	15	Characterizes environmental aspects of site (such as landforms, drainage, plant communities, and soil properties) based on interpretation of data collected during site investigation, sampling and analysis (for example, contaminants, their concentration and general extent).	3
	16	Prepares site assessment report(s) to meet regulatory and other requirements, identifying potential risk and scope of further action by appropriate stakeholders, if necessary.	3
<b>Developing/ Implementing site remediation (Phase 3) plans</b>			
	19	Evaluates possible remediation/restoration/reclamation alternatives, taking into account costs, technological constraints, characteristics of the contaminant, characteristics of the affected land, and stakeholders' concerns.	3
	20	Recommends remediation clean-up targets to make the site fit for its intended use or return it to its original condition (applies to all sites including watershed restoration, forestry site reclamation, mine closures, etc.).	3
	21	Develops site remediation/restoration/reclamation plans and programs, including objectives, targets, contamination description, issue resolution process, pilot requirements, time schedule, and cost estimate.	3
	23	Conducts full-scale remediation activities (e.g. thermal, biological, chemical or physical treatment, containment, vapour extraction, excavation, removal of heritage objects, etc.).	3
	24	Monitors post-remediation conditions and results to assess if targets and regulatory requirements have been met.	3
	25	Prepares remediation completion report, including documentation of remediation and post-remediation monitoring data, and review of environmental outcomes relative to standards, for submission to regulators and stakeholders.	3
<b>Developing/ Implementing site restoration/reclamation (Phase 3) plans</b>			
	26	Investigates attributes of materials, such as physical, chemical, and geotechnical involved in the restoration/reclamation.	3

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	27	Develops appropriate construction and reclamation procedures and contingency plans based on best management and health and safety practices, and a minimum "footprint".	3
	28	Conducts on-site reclamation activities (including landscaping, tree-planting, and habitat development), using appropriate species and procedures for revegetation.	3
	29	Provides environmental inspection during construction and reclamation to ensure that regulatory requirements are met and that procedures and plans are being followed.	3
	30	Conducts on-site restoration activities as required, e.g. restore riparian, coastal zone, and wetland habitats.	3
	32	Monitors post-restoration/reclamation conditions and results to assess if targets and regulatory requirements have been met.	3
	33	Prepares site restoration and site reclamation report(s) for submission to the appropriate regulators and stakeholders.	3
<b>Interpreting/ enforcing/ complying with environmental regulations and standards</b>			
	34	Provides expert advice and/or testimony to senior management, internal staff, regulatory bodies, interest groups and the public on matters related to disputes, compliance and other environmental issues, including processes for acquiring regulatory approval.	1
	35	Applies environmental legislation regarding issues such as contaminated sites, hazardous materials and waste, pesticide use, storage tanks, etc. to specific applications as appropriate.	1
	37	Prepares regulatory applications.	3
	38	Prepares permits and operational permit reports (including air permits, waste disposal permits, resource harvesting permits, etc.)	3
	40	Develops plans and programs to meet regulatory requirements, including monitoring programs and employee information and communication plans.	1
	41	Implements programs, including monitoring activities, to ensure regulatory compliance.	1
	42	Evaluates compliance with environmental regulations, including the documentation of violations and non-compliance episodes.	1
	43	Prepares compliance and regulatory reports for internal use and for filing with regulatory agencies.	2
	45	Oversees or participates in audits of the environmental performance of organizations and jurisdictions to determine the adequacy of their policies and procedures, and non-compliance issues.	3
<b>Implementing pollution prevention, abatement &amp; control (PAC) methods</b>			
	46	Assesses operations and processes for potential pollution problems (involves identifying contaminant sources, determining their characteristics and the magnitude of the potential risks).	3
	47	Characterizes the attributes of processes and products generated (for example, chemical/biological composition, toxicity, physical properties and degradability).	3
	50	Implements pollution prevention, abatement, and control methods/solutions to prevent, abate, control and reduce pollution, contamination or emissions (e.g. devises ways to prevent contamination of water by agri-chemicals and petroleum products).	3
	51	Monitors the effectiveness of Pollution Prevention, Abatement, and Control (PAC) solutions, and the performance of installed PAC equipment, systems and technologies.	3
<b>Developing/ Implementing water supply and water efficiency plans and programs</b>			
	76	Assesses the environmental aspects of the design, operation and maintenance of water and wastewater distribution/collection systems.	3
	77	Assesses the quality and availability of water supply (both surface and groundwater).	1

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	80	Monitors effectiveness of water/wastewater programs and water treatment equipment and processes to meet environmental performance requirements.	2
	84	Provides guidance and management on day to day operations of water treatment plants.	1
	85	Supports in the optimization of plant processes and operations to ensure/maintain excellent water quality.	1
<b>Developing environmental sampling, testing and monitoring programs</b>			
	86	Determines the need and scope for sampling program, including environmental indicators, chemicals of concern, and sampling constraints (such as access to sites, fiscal or other limitations).	1
	87	Develops environmental sampling protocols, including data quality objectives, the frequency and timing of sampling, optimum locations for continuous or discrete sampling, data capture systems, sampling procedures, sampling methodology, personnel, and parameter list for analysis.	1
	88	Develops site-specific work plans, including Quality Assurance/Quality Control (QA/QC) methods, measuring/monitoring procedures and analytical equipment (both field and lab equipment) to be used for the specific application (e.g. air, water, soil, sediments, rock, fauna, flora, human, workplace, etc.).	1
	89	Develops methodologies and protocols for the collection and analysis of qualitative data to complement any quantitative data collected.	1
	90	Modifies existing sampling programs to reflect changing research priorities and/or environmental circumstances.	1
	91	Maintains analytical test instruments and monitoring or sampling equipment as per manufacturers' user-maintenance specifications and user's standard operating procedures, including calibration of instruments/equipment.	1
<b>Collecting samples and data for environmental purposes</b>			
	92	Determines the appropriate sample size, sampling containers, protocols, preservation methods, collection apparatus and transportation, etc.	1
	93	Selects, assembles and deploys analytical test instruments or sampling equipment (such as data capture systems, continuous monitoring devices, drilling cores, water bailers, etc.), including assembly and documentation of deployment and operational conditions and other pertinent details, such as any deviation to standard procedures.	1
	94	Collects samples and specimens as per established protocol, using more routine sampling procedures and apparatus.	1
	95	Collects samples and specimens as per established protocol, using more complex sampling procedures and apparatus.	1
	96	Uses appropriate techniques to prepare (code, preserve, pretreat and transport) samples for analysis while maintaining chain of custody requirements and sample integrity.	1
	99	Performs direct measurement of physical parameters for air/water/soil, including for example, temperature, flow rates, pressure, gaseous/particulate emissions, etc.	1
	102	Maintains appropriate records and ongoing documentation pertaining to field and laboratory analytical work, including regulatory documentation.	1
<b>Analyzing and interpreting environmental samples and data</b>			
	103	Uses more routine analytical procedures and instruments (such as meters, electrodes, and spectrophotometers) to identify and/or quantify the physicochemical properties, specific chemicals or chemical groups, etc. of the samples collected.	3
	109	Conducts statistical analysis of data using appropriate computer software, databases, etc.	2
	110	Assesses the accuracy and precision of analytical results by applying good practice guidance or established QA/QC methods.	1

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	111	Interprets analytical data to identify trends, significant changes from historical patterns, deviations, or evidence of environmental stresses, etc.	1
	112	Determines how results will be applied, for example redesigning sampling protocol, redesigning research methodology, developing a baseline dataset, etc.	1
	113	Conducts quality control reviews of data collection, processing, and analysis to ensure data is 'fit for purpose' using accepted scientific practices and proper Quality Assurance/Quality Control (QA/QC) protocols.	2
	114	Prepares summary reports of analysis results using technical formats such as tables, charts, and diagrams for integration into technical reports and/or presentation to expert and/or non-expert audience through scientific journals, oral presentations, etc.	2
<b>Conducting environmental risk assessments</b>			
	150	Identifies hazards, opportunities or potential risks to human health, the environment, facility operation/financial loss, legal liability, social impact, public perception through such activities as collecting source data, reviewing literature, investigating illness/injuries, and obtaining feedback from workers or the public.	3
	154	Conducts quantitative risk assessment to identify the direct and indirect consequences of individual and multiple environmental impacts, including remediation and restoration activities if applicable.	3
	155	Characterizes the risks of environmental stressors or contaminants at varying intensities and cumulative dosages on human health and/or the ecosystem.	3
<b>Implementing environmental management systems</b>			
	160	Develops an Environmental Management System which is consistent with the organization's strategic plan and regulatory requirements, including goals, objectives, and targets.	3
	161	Implements the Environmental Management System strategies and practices.	3
<b>Managing environmental management systems and practices</b>			
	170	Revises Environmental Management System practices and outcomes to correct and prevent non-conformance.	3
	171	Manages audits of the Environmental Management System to identify areas where corrective actions are needed.	3
<b>Monitoring/ addressing occupational and public health and safety</b>			
	180	Develops preventative programs that help protect workers' (or the public's) health and safety in response to environmental concerns.	3
	181	Develops organizational procedures concerning environmental and occupational/public health and safety matters.	3
	182	Implements measures to mitigate the health & safety hazards associated with environmental issues created by operations or construction activities and their by-products such as hazardous leachates, effluents and dusts.	3
	183	Develops emergency response plans and procedures to address environmental crises (such as accidental emissions, discharges, releases, explosions, leaks or spills that could cause a threat to humans and the environment), in consultation with stakeholders and emergency response experts.	3
	184	Plans responses to mitigate human health risks/dangers of catastrophic events and insidious damage, such as the release of toxic gases.	3
	185	Monitors existing or potential environmental health hazards and stressors such as noise, energy (UV, IR, radiation), chemical/biological pollutants in the air, water, and/or soil.	3

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<b>TECHNICAL COMPETENCIES</b>			
<b>Conducting studies related to ecosystem and habitat preservation and/or the management of natural resources</b>			
	195	Identifies the impact of development/exploration/exploitation activities on the biodiversity of surrounding natural habitats (such as the "downstream" impacts of agricultural activities on surrounding soil and water).	3
	203	Prepares baseline report including gap analysis report where baseline data is incomplete, interpretation of baseline data and development of recommendations for consideration by stakeholders and decision-makers.	3
	204	Designs monitoring systems for measuring human impacts on natural resources and/or ecosystems.	3
	205	Tracks the deviation of earth and life science inventories from baseline levels through environmental monitoring programs.	3
<b>Developing and implementing plans, programs and practices for ecosystem and habitat preservation and/ or the management of natural resources</b>			
	206	Investigates significant occurrences and changes that may signal the need for a resource management and/or ecosystem preservation plan.	3
	207	Seeks input from technical specialists (e.g., biologists, taxonomists, modellers) and other stakeholders (governments, non-governmental organizations, aboriginal peoples, etc.) with respect to resource management and habitat protection (such as the identification of important habitat sites).	3
<b>Developing environmental curricula and programs</b>			
	233	Demonstrates a knowledge of environmental science and technology that enables the educational professional to understand the fundamental relationships between human activities and the natural environment.	3
<b>Conducting environmental research/ publishing results</b>			
	268	Writes up the results of the environmental research in accordance with rigorous publishing guidelines (for publication in peer-reviewed journals, presentation at conferences, etc.).	3
<b>Developing/ Implementing environmental communications and awareness programs</b>			
	288	Demonstrates an understanding of the fundamental relationships between human activities and the natural environment.	3
	297	Establishes goals for environmental awareness programs that will help ensure the intended message is accurately conveyed to the appropriate target audience.	3

## Water Quality Profile

Subcategory	Comp. ID	Competency Statement	Proficiency Level
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### TRANSFERABLE COMPETENCIES

#### Professional Ethics and Work Style

1	Maintains good standing in professional associations, practicing professional ethics and remaining current in practice requirements.	Exceptional
2	Demonstrates professional, ethical conduct, such as trust, integrity, confidentiality and discretion during the conduct of all work activities.	Exceptional
3	Demonstrates self reliance, motivation and commitment in the conduct of day to day activities.	Exceptional
4	Demonstrates flexibility and creativity in the face of unusual or unexpected circumstances.	Exceptional
5	Cooperates willingly with others in dealing with changing situations, conditions, and expectations.	Exceptional
6	Demonstrates attention to detail to ensure the thoroughness and accuracy of work results.	Exceptional
7	Balances the need for 'attention to detail' with a focus on goals and objectives to achieve the desired outcomes.	Exceptional
8	Applies principles of quality assurance and scientific rigour in all work activities.	Exceptional

#### Learning and Creativity

9	Stays current on the theory and practice pertinent to one's roles and responsibilities.	Exceptional
10	Integrates relevant data and information from a variety of disciplines/sources.	Exceptional
11	Continuously pursues personal learning and development opportunities to promote professional growth and development.	Exceptional
12	Uses creative approaches to develop innovative ways of working, new designs and technologies, and cost-effective solutions to technical and business challenges.	Exceptional

#### Communicating Effectively

13	Prepares clear, well-formatted reports and other written communications that meet established protocols and are appropriate to the target audience.	Exceptional
14	Communicates clearly and respectfully using verbal and nonverbal language appropriate to the cultural and social context.	Exceptional
15	Uses effective interviewing techniques, including appropriate and respectful questioning, clarifying and listening skills, to elicit accurate and complete information.	Exceptional
16	Conveys technical information accurately, clearly and concisely, interpreting it appropriately and effectively for the target audience.	Exceptional
17	Uses appropriate content, graphics and format in oral presentations to address the specific needs of target audiences.	Exceptional

#### Collaboration

18	Builds constructive networks inside and outside the organization to facilitate the accomplishment of results.	Exceptional
19	Builds strong relationships and trust with team members that make it possible to receive everyone's input and ideas, and maximize individual and team output and potential.	Exceptional
20	Works cooperatively with multiple stakeholders, demonstrating willingness to consider alternative approaches or ideas.	Exceptional
21	Deals effectively with confrontational situations, demonstrating diplomacy, tact, empathy and consideration for differing points of view.	Exceptional

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<b>Critical Thinking/ Judgement</b>			
	22	Carries out independent primary, secondary and tertiary research to collect sufficient data and information pertinent to the area of inquiry.	Exceptional
	23	Performs an objective and thorough analysis of information and data from multiple sources.	Exceptional
	24	Distinguishes between facts, inferences and assumptions to establish the quality of the information collected and the reliability of its source.	Exceptional
	25	Employs professional scepticism to assess the objectivity and reliability of assumptions and evidence asserted by a responsible party or client.	Exceptional
	26	Makes decisions in a timely manner, committing to a course of action that considers pertinent data, information, options and implications.	Exceptional
<b>Planning and Organizing Work and Projects</b>			
	27	Uses ICT (information communication technologies) as appropriate to manage work effectively and increase efficiency.	High
	28	Manages multiple priorities through the selection and application of time and project management tools and approaches.	High
	29	Develops work/project plans, identifying the work to be accomplished, the risk/contingencies that may arise, and how they will be addressed.	High
	30	Coordinates resources (including financial, logistical, supplies, etc.) needed to implement work/project plans and achieve desired results.	Exceptional
<b>Leading/ Influencing Others</b>			
	31	Manages the work of others, including project teams, working groups and contractors.	High
	32	Builds consensus and commitment to the team mandate, vision, goals, roles, responsibilities, and processes.	Exceptional
	33	Facilitates solutions to barriers that affect individual, team and project performance.	Exceptional
	34	Identifies the individual/and or team competencies that are required to accomplish work/project objectives and deliverables.	High
	35	Mentors peers and team members to facilitate their technical competence and on-going professional development.	High
	36	Creates an environment that promotes innovation, creativity and entrepreneurial thinking within the organization.	Exceptional
	37	Navigates effectively through political and organizational complexities to avoid or overcome potential barriers to successful completion.	Exceptional
<b>Business Acumen</b>			
	38	Analyzes relevant business trends, financial measures, economic factors and new regulations, assessing and articulating their impact on the organization.	Moderate
	39	Recognizes business threats and/or opportunities affecting their area of the business, recommending actions to address them.	Moderate
	40	Identifies clients' stated and underlying needs, and the work activities and methodologies that will best address these needs.	High
	41	Translates the organization's vision and goals into relevant plans and actions, realigning work efforts with changes in organizational direction.	Moderate
	42	Drives the implementation of changes, tracking their impact to ensure organizational performance is improved or sustained.	Moderate