

Research & Development Profile

Subcategory	Comp. ID	Competency Statement	Importance Type
TECHNICAL COMPETENCIES			
Conducting environmental impact assessments			
	1	Ensures the identification of the geographic, environmental, economic, social, and cultural scope and parameters to be used for the impact assessment study.	2
	3	Reviews earth and life science systems, functions, inventories and existing studies to determine if sufficient baseline data is available for the impact assessment study.	2
	4	Reviews facility/development design, production/manufacturing processes.	2
	6	Identifies which areas are likely to be significantly impacted either negatively or positively by development activities, e.g. biophysical, economic, social, cultural, and heritage resources.	2
	7	Assesses qualitative and quantitative environmental issues, risks or problems, including their cumulative effect and corresponding economic, social and cultural impacts.	2
Conducting environmental site assessments (ESA - Phase 1 and Phase 2)			
	14	Conducts investigation, sampling, screening, and analysis (including geophysical mapping) activities of landforms, soil, ground water, sediments, airborne contaminants, etc., as required.	2
Interpreting/ enforcing/ complying with environmental regulations and standards			
	36	Defines environmental performance requirements for specific jurisdictions.	2
Implementing pollution prevention, abatement & control (PAC) methods			
	46	Assesses operations and processes for potential pollution problems (involves identifying contaminant sources, determining their characteristics and the magnitude of the potential risks).	2
Developing environmental sampling, testing and monitoring programs			
	86	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
	87	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
	88	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
	89	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.).	2
	90	Develops methodologies and protocols for the collection and analysis of qualitative data to complement any quantitative data collected.	1
	91	Modifies existing sampling programs to reflect changing research priorities and/or environmental circumstances.	1
Collecting samples and data for environmental purposes			
	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

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	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
	97	Prepares samples (other than biological) for lab analysis using techniques such as grinding, dehydration, dilution or concentration, chemical extraction, digestion, and fractionation.	1
	99	Performs direct measurement of physical parameters for air/water/soil, including for example, temperature, flow rates, pressure, gaseous/particulate emissions, etc.	2
	102	Maintains appropriate records and ongoing documentation pertaining to field and laboratory analytical work, including regulatory documentation.	1
Analyzing and interpreting environmental samples and data			
	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.	1
	104	Uses more complex analytical procedures and advanced instruments, such as gas liquid chromatography, mass spectrometry, polymerase chain reaction and Enzyme-Linked ImmunoSorbent Assay, to identify and/or quantify chemical properties, specific chemicals or chemical groups (including those present at trace concentrations), etc. in the samples collected.	2
	108	Makes required calculations and estimates including for example, calculation of air quality indices (e.g. daily smog ratings).	2
	109	Conducts statistical analysis of data using appropriate computer software, databases, etc.	1
	110	Assesses the accuracy and precision of analytical results by applying good practice guidance or established QA/QC methods.	1
	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.	1
	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.	1
Conducting environmental risk assessments			
	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.	2
	152	Predicts the probable exposure to hazards using exposure and chemical fate/transport models, and the physical and chemical properties of contaminants.	1
	153	Conducts qualitative assessment of risk by identifying the likelihood of events and the likelihood and severity of individual consequences.	2
	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.	2
	155	Characterizes the risks of environmental stressors or contaminants at varying intensities and cumulative dosages on human health and/or the ecosystem.	2

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TECHNICAL COMPETENCIES			
Evaluating/ Mentoring/ Supervising students/practitioners			
	249	Mentors students and environmental practitioners by advising, supervising, and challenging them to facilitate the development and application of new knowledge in their role as environmental practitioners and community partners in their role in the delivery of sustainable environmental practices.	2
Designing/ developing environmental research and development proposals, programs, and projects			
	252	Participates in taskforces and committees (set up by industry, governments or professional associations) to expand the body of knowledge on environmental research priorities, methodologies, and breakthroughs.	2
	253	Identifies research priorities and opportunities for funding, considering financial viability and other indicators such as, current environmental conditions, scientific knowledge gaps, need for industrial improvements, socio-economic and cultural factors.	2
	254	Defines the environmentally-related problem or opportunity and potential scientific, ecological or socio-economic benefits of conducting research (often including its practical application).	2
	255	Conducts review of literature and existing data pertinent to the potential environmental research program/project.	1
	256	Defines the scope, strategy and objectives for specific environmental research projects and programs, including appropriate quantitative and qualitative methodologies and tools.	1
	257	Writes a proposal, communicating the scientific rationale behind the environmental research project to obtain funding and/or approval from internal, industry, government, or other sources.	1
	258	Evaluates the technical, environmental and socio-economic merits of proposals (e.g. for determining eligibility and allocation of funds).	1
	259	Develops a research action plan for the environmental project (e.g. establish budget, deliverables, timelines and human resource needs) for consideration by stakeholders and decision-makers.	1
	260	Identifies the laboratory, equipment and other site-specific needs for the environmental research program.	1
	261	Provides expert input for the recruitment of environmental research staff.	1
Conducting environmental research/ publishing results			
	262	Establishes the framework, baselines and benchmarks against which environmental research outcomes can be measured.	2
	263	Defines the specific methodologies and protocols appropriate to the environmental research project.	1
	264	Conducts science and social science environmental research (e.g. eco-toxicology studies, developing models, identifying optimal agri-chemical application rates, studies on environmental perspectives and the effectiveness of public education programs, etc.).	1
	265	Provides expert guidance to others who may be assisting with the environmental research within or outside the organization.	1
	266	Analyzes the environmental research findings to determine if research objectives have been met, or if research methodologies need to be modified.	1
	267	Develops recommendations for the application of the environmental research findings based on pilot testing and demonstration.	1
	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.).	1
	269	Reviews other environmental researcher's reports, proposals, and publication papers to ensure their technical accuracy and soundness.	2

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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.	High
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.	High
10	Integrates relevant data and information from a variety of disciplines/sources.	High
11	Continuously pursues personal learning and development opportunities to promote professional growth and development.	High
12	Uses creative approaches to develop innovative ways of working, new designs and technologies, and cost-effective solutions to technical and business challenges.	High

Communicating Effectively

13	Prepares clear, well-formatted reports and other written communications that meet established protocols and are appropriate to the target audience.	High
14	Communicates clearly and respectfully using verbal and nonverbal language appropriate to the cultural and social context.	High
15	Uses effective interviewing techniques, including appropriate and respectful questioning, clarifying and listening skills, to elicit accurate and complete information.	Moderate
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.	High

Collaboration

18	Builds constructive networks inside and outside the organization to facilitate the accomplishment of results.	Moderate
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.	High
20	Works cooperatively with multiple stakeholders, demonstrating willingness to consider alternative approaches or ideas.	Moderate
21	Deals effectively with confrontational situations, demonstrating diplomacy, tact, empathy and consideration for differing points of view.	High

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Critical Thinking/ Judgement			
	22	Carries out independent primary, secondary and tertiary research to collect sufficient data and information pertinent to the area of inquiry.	High
	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.	High
	26	Makes decisions in a timely manner, committing to a course of action that considers pertinent data, information, options and implications.	High
Planning and Organizing Work and Projects			
	27	Uses ICT (information communication technologies) as appropriate to manage work effectively and increase efficiency.	Moderate
	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.	High
Leading/ Influencing Others			
	31	Manages the work of others, including project teams, working groups and contractors.	Moderate
	32	Builds consensus and commitment to the team mandate, vision, goals, roles, responsibilities, and processes.	Moderate
	33	Facilitates solutions to barriers that affect individual, team and project performance.	High
	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.	High
	37	Navigates effectively through political and organizational complexities to avoid or overcome potential barriers to successful completion.	High
Business Acumen			
	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.	Moderate
	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