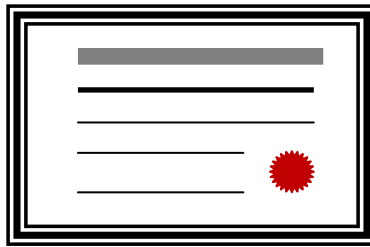


# Use of qualified persons in the Provincial administration and management of natural resources in British Columbia

## Inventory and analysis



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Prepared by

Qualified Persons Cross-Ministry Working Group

Province of British Columbia

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## 1 Introduction

The provincial agencies that regulate the use of natural resources (NRS agencies) are working together to improve the effectiveness and efficiency of natural resource administration. The use of qualified persons (QPs) is one approach that can be used to achieve this objective, and which is already widely in use. In order to better understand what opportunities might exist for future use of QPs, it was desirable to understand how QPs are currently engaged in natural resource management. This report presents the results of an inventory conducted by the Professional Reliance Cross-Ministry Working Group in 2011 and updated by the Qualified Persons Cross-Ministry Working Group in 2013. The inventory focused primarily on qualified persons who are on the staff of, or contracted by, resource users.

## 2 Methodology

Working group members identified situations where work was carried out by persons who had to possess some manner of permit, licence, certificate, registration, approval, or other particular qualification. Information was obtained about the nature of the qualification, the legislative or other authority for the use of that qualified person, and the specific function they performed. The members of either working group who contributed are listed in Appendix 1, and the information collected is presented in Appendix 2. This information was then analyzed for similarities, differences and patterns, in order to better characterize the use of QPs, and provide a common lens or language to support discussion between different business areas. The results are presented in the following sections.

In this report, the term “resource user” includes those who hold a natural resource authorization (licensees) and those who are in the process of obtaining an authorization (proponents).

## 3 Types of Qualified Persons

A review of natural resource legislation showed that a number of different terms are used to indicate who must, or may, conduct a particular kind of work. Examples of how these qualified persons are defined in legislation are provided in Appendix 3. For the purposes of this report, the term “qualified person” includes all of these defined qualified persons, as well as other registered professionals or accredited practitioners that may not be specifically referenced in legislation.

From a review of the results of the inventory, the qualified persons who assist in the administration and management of natural resources can be viewed to fall into five main categories:

- a. Legislated self-regulating professionals
- b. Non-legislated self-regulating professionals
- c. Accredited practitioners
- d. Pre-qualified (“rostered”) service providers
- e. Meets specified criteria

These categories are based mainly on how the QP came to be qualified, and are not necessarily mutually exclusive.

### 3.1 Legislated self-regulating professionals

Legislated self-regulating professionals are those for which there is legislation establishing a governing association, and who can be held accountable for the decisions they make, the advice they give, and the work they do. The association establishes the standards for membership and adjudicates eligibility and competency to practice. The requirements for registration generally include a prescribed education requirement, a period of related experience and mentoring, and an acceptable grade on an exam set by the professional association. The professionals in this group, and the corresponding BC associations are presented in Table 1.

The self-regulating professionals become so by being accepted and registered as a member of an association that has been established for the purpose of ensuring that its members are competent in their field of practice.

Table 1. Legislated self-regulating professionals.

Professional	BC Professional Association
Registered professional forester	Association of British Columbia Forest Professionals
Registered forest technologists	Association of British Columbia Forest Professionals
Professional engineers	Association of Professional Engineers and Geoscientists of British Columbia
Professional geoscientists	Association of Professional Engineers and Geoscientists of British Columbia
Professional agrologists	British Columbia Institute of Agrologists
Registered professional biologist	College of Applied Biology
Applied science technologist	Applied Science Technologists and Technicians of British Columbia
Certified technician	Applied Science Technologists and Technicians of British Columbia
British Columbia land surveyor	Association of British Columbia Land Surveyors
Notary public	Society of Notaries Public of British Columbia
Certified general accountants	The Certified General Accountants Association of British Columbia
Chartered accountants	Institute of Chartered Accountants of British Columbia
Certified management accountants	Certified Management Accountants Society of British Columbia

### 3.2 Non-legislated self-regulating professionals

These professionals belong to an association that establishes entrance requirements and standards of practice, but for which there is no legislation. These associations may be established under the *Societies Act*. This group may include legislated professionals that have obtained membership in an association

that focuses on a specialized area of practice. The professionals identified and the corresponding BC association are presented in Table 2.

Table 2. Non-legislated self-regulating professionals

Professional	BC Association
Professional archaeologist	BC Association of Professional Archaeologists
Planner	Planning Institute of BC
Contaminated Sites Approved Professionals	Contaminated Sites Approved Professionals Society
Professional chemist	Association of the Chemical Profession of British Columbia

### 3.3 Accredited practitioners

This group includes QPs who have become qualified as a result of passing a test set by government or another entity, or obtaining a licence from government that entitles them to carry out a certain trade or service.

Accreditation requirements may be set and overseen by government, or by a non-government organization. For those identified in the inventory, there is less of a focus on advanced education, and more of a focus on specific skills and experience, and in some cases passing an examination.

For example, a scaling licence is received on passing an examination set by the Ministry of Forests, Lands and Natural Resource Operations.

Timber cruisers are accredited by the Association of BC Forest Professionals. Applicants must demonstrate skills, experience and knowledge of cruising.

In the case of qualified well drillers and qualified well pump installers, these persons must first obtain a certificate from the Ministry of Environment, or the Canadian Ground Water Association, but are not considered to be qualified until they have applied to the water comptroller and been placed on a register of qualified well drillers and well pump installers.

For mining-related certifications, such as Shift Boss, courses are offered through the private sector or by operating mines, and testing is managed by Mines Inspectors.

The qualified persons identified and the corresponding accrediting body are presented in Table 3.

Table 3. Accredited practitioners

Professional	Accrediting Body
Licensed scaler	Ministry of Forests, Lands and Natural Resource Operations
Silviculture Accredited Surveyor	Ministry of Forests, Lands and Natural Resource Operations

Pesticide applicator	Ministry of Environment
Pesticide dispenser	Ministry of Environment
Accredited Timber Cruiser	Association of British Columbia Forest Professionals
Accredited Timber Evaluator	Association of British Columbia Forest Professionals
Qualified well pump installer	Ministry of Environment
Qualified well driller	Ministry of Environment
Environmental professional	Eco Canada
Blasting (Open Pit and Underground) Certificate	Ministry of Energy and Mines
Shift Boss (Open Pit and Underground)	Ministry of Energy and Mines
Mine Rescue (Open Pit Surface and Underground) Certificate	Ministry of Energy and Mines
Fire Boss Certificate	Ministry of Energy and Mines
Coal Blasting Certificate	Ministry of Energy and Mines
First Class and Second Underground Coal (Management) Certificate	Ministry of Energy and Mines
Faller	BC Forest Safety Council or Enform,
Falling Supervisor	BC Forest Safety Council BCFSC Falling Supervisor Training Course or is a BCFSC Certified Falling Supervisor or for MFLNRO Wildfire Management Branch
Burn Boss	Ministry of Forests, Lands and Natural Resource Operations (internal certification)
Operator	Environmental Operators Certification Program
Accredited Appraiser	Appraisal Institute of Canada

### 3.4 Pre-qualified (rostered) service providers

This group includes qualified persons or other service providers that have submitted their qualifications to government, have been approved as being qualified to perform a certain kind of work, and have been placed on a list, or roster.

Rosters appear to be used in two distinct ways:

1. Procurement of goods and services by government agencies, e.g. a pre-qualified list of potential contractors.
2. A list of eligible contractors that may, or must, be used by resource users.

Examples of these types of rosters kept by natural resource ministries are described below.

### 3.4.1 e-RISP

The Ministry of Transportation and Infrastructure's electronic Registration, Identification, Selection and Performance evaluation (eRISP) system is an online registry for consultants and consulting firms who wish to provide engineering, technical and environmental consulting services to government on roadway projects.

eRISP assists in the selection of engineering and technical contracts valued at less than \$1 million. The information about consulting firms is securely stored and processed in a manner that ensures a confidential and fair selection process for ministry assignments on transportation projects.

The registry includes a very wide range of qualified persons, who carry out environmental and administrative services in addition to engineering and geoscience. A list of the many categories of qualified persons that are registered in the system, and the adjudicating criteria, can be found in the Category Glossary at [http://www.th.gov.bc.ca/eRISP/documents/Category\\_Glossary.pdf](http://www.th.gov.bc.ca/eRISP/documents/Category_Glossary.pdf).

### 3.4.2 Qualified well drillers and well pump installers

The water comptroller maintains a register of qualified well drillers and well pump installers. To be accepted into the registry, the applicants must hold an acceptable certificate, and must provide references and their work history. These QPs are both accredited and “rostered”.

## 3.5 Meeting specified criteria

In some cases, legislation or another instrument may specify the qualifications that a person must possess in order to carry out certain work. Fulfilling the criteria is all that is required to become a qualified person, and there is no formal certification that all the criteria have been fulfilled. One of the criteria may be registration in a professional association. An example of this is the Qualified Environmental Professional under the Riparian Areas Regulation. The person must have a specified professional designation, and self certification of particular relevant skills and experience, but there is no process that confirms that all criteria are met.

A full list of the qualified persons that were identified in the inventory is found in Appendix 4. More information about specific mechanisms for requiring or enabling the use of QPs can be found in “Mechanisms to Enable or Support the Use of Qualified Persons in the Natural Resource Sector”, Bauer and Webber Atkins, 2013.

## 4 The functions that Qualified Persons perform

Qualified persons carry out a wide range of activities on behalf of natural resource agencies and resource users. If one includes the variations attributable to the type of authorization involved, and the specific task performed, then there are hundreds of different ways in which qualified persons are used in the management of natural resources. However, if the work is viewed in terms of similar functions, there are 17 main functions that qualified persons perform:

- Developing standards
- Gathering and providing information



- Predicting impacts
- Preparing applications
- Preparing plans
- Consultation
- Designing facilities and structures
- Designing operational programs
- Statutory decision-maker support
- Supervising activities
- Conducting activities
- Troubleshooting
- Reporting
- Verification
- Training
- Peer review
- Expert witness

These main functions are discussed in more detail below.

#### **4.1 Developing standards**

Professional associations may establish guidelines or standards for the use of their members. Professional associations may also work with government to develop criteria or standards that are used in regulation.

One example of the former circumstance is the preparation of *“Guidelines for Management of Terrain Stability in the Forest Sector, 2008*, prepared jointly by Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) and the Association of British Columbia Forest Professionals (ABC PF).

#### **4.2 Gathering and providing information**

Qualified persons gather and provide information on the nature and condition of natural resources in and near an area for which development, or some other land use, is proposed.

Examples include assessing suitability for agriculture, and terrain stability assessments.

#### **4.3 Predicting impacts**

Qualified persons predict the probable impact of a proposed activity on

- the environment
- a community of interest
- other resource users.

Examples of this include, estimating the impacts on fish habitat of proposed waterpower projects, archeological impact assessments, and estimating the impacts on water quality of proposed log handling activities.

#### 4.4 Preparing authorization applications

On behalf of clients, qualified persons prepare applications to obtain authorizations for natural resource use. The professional ensures that it meets the content and quality requirements of government. This reduces the likelihood of delays in the processing of the application, due to insufficient information or lack of clarity.

Examples of this include:

- Forestry cutting permit applications. If a Registered Professional Forester (RPF) or Registered Forest Technologist (RFT) states that it is in conformance with the Forest Stewardship Plan, then MOFR does not need to check for consistency with the FSP.
- Preparation by a land surveyor of sketches for a land application.

#### 4.5 Preparing plans

Qualified persons prepare management or development plans that

- a. will achieve established objectives; and/or
- b. will meet established standards or regulatory requirements.

Examples of this include the preparation of Forest Stewardship Plans, the development of a mushroom composting pollution prevention plan, and invasive plan management plans.

#### 4.6 Designing facilities and structures

Qualified persons may be required to design facilities or structures to meet required standards or objectives. Some examples of this are the design of a highway or bridge, a sewage treatment facility, an organic matter recycling facility, or an oil or gas production facility.

#### 4.7 Designing operational programs

Qualified persons may be required to prepare a plan or schedule of activities to guide the scheduling, conduct and completion of work. Examples include the design of an environmental monitoring program, the preparation of an operating plan for a municipal sewerage facility, and the preparation of a plan for the application of organic matter to land.

#### 4.8 Supervising activities

Qualified persons may supervise activities to ensure they are carried out properly, or according to plan. An example is the supervision of monitoring and sampling related to finfish aquaculture waste control.

#### 4.9 Conducting activities

Qualified persons may also carry out resource management activities, or may engage in a trade that requires special training and certification. Examples include:

- environmental monitoring
- pesticide applicators
- servicing ozone depleting appliances
- operation of a municipal sewerage system
- logging waste surveys

## 4.10 Troubleshooting

This role also involves assessing problems that occur with existing developments, land uses, facilities or operations (i.e. leaky condos, leaky sewage lagoons, contaminated sites, industrial spills etc.), and providing recommendations and developing solutions.

## 4.11 Reporting

Qualified persons may prepare reports. Examples include shut-down reports for landfill gas management, and preparing pesticide use reports. Some of these reports may be verified, as discussed in the next section.

## 4.12 Verification

Qualified persons can take on a certain level of accountability for the completion of work by:

- Verifying or certifying that information provided is true and correct
- Verifying or certifying that activities were completed as planned, or to a required standard

Examples are:

- Verifying that a Land Application Plan for organic matter recycling was followed.
- Verification of reports and assessments under the Discharge of Water from Coalbed Gas Operations regulation, and the Landfill Gas Management Regulation.
- Verification that roads have been built to appropriate standards.

## 4.13 Consultation

Qualified persons may carry out consultation with First Nations on behalf of their clients, such as for independent power applications.

## 4.14 Peer review

Qualified persons may review and comment on the work of other qualified persons.

## 4.15 Statutory decision-maker support

In order to support statutory decision makers (SDMs) in their decision-making, qualified persons may review and make recommendations on submitted work, or provide specific advice on the request of the decision-maker, without seeing the submission under consideration. In this case, the qualified persons may be government staff, or an external QP hired by the SDM

## 4.16 Training

Qualified persons may be called upon to train people, such as training a municipal sewerage operator.

## 4.17 Expert witness

Qualified persons may be called upon to serve as an expert witness in a court of law.

# 5 QP functions and authorization administration

Many of the functions above are typically associated with particular stages of authorization management, as shown in Table 4. As can be seen in the first column, some functions may support an

activity to proceed without a site-specific authorization. Qualified persons can also play a role in the development of guidance material.

Table 4. QP functions aligned with authorization administration stages

QP work in lieu of authorization	Pre-application	Submission review, Decision	Active	Compliance Verification	Post Authorization
QPs working for resource users					
<ul style="list-style-type: none"> <li>• Preparing plans</li> <li>• Conducting activities according to regulations or standards.</li> <li>• Certifying work done as required</li> </ul>	<ul style="list-style-type: none"> <li>• Application preparation</li> <li>• Plan preparation</li> <li>• Structure or facility design.</li> <li>• FN consultation</li> <li>• Gathering and providing information</li> <li>• Predicting impacts</li> </ul>		<ul style="list-style-type: none"> <li>• Environmental monitoring</li> <li>• Supervising activities</li> <li>• Training</li> <li>• Troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• Verification that activities were completed, or carried out according to the plan ,or other requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Verification that activities were completed, or carried out according to the plan, or other requirements</li> <li>• Expert witness</li> </ul>
QPs working for government					
	<ul style="list-style-type: none"> <li>• Plan preparation</li> <li>• Structure or facility design.</li> <li>• FN consultation</li> <li>• Gathering and providing information</li> <li>• Predicting impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Expert Opinion</li> <li>• Predicting impacts</li> <li>• Peer review</li> <li>• Support to statutory decision-maker</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental monitoring</li> <li>• Supervising activities</li> <li>• Training</li> <li>• Troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• Verification that activities were completed, or carried out according to the plan ,or other requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Verification that activities were completed, or carried out according to the plan, or other requirements</li> <li>• Expert witness</li> </ul>

## 6 Differentiating factors

An analysis of the inventory suggested three other ways in which QPs or their work could be characterised: employer, exclusivity, and the hazards addressed.

### 6.1 Employer

Qualified persons may be employed by the Province on staff, contracted by the Province to carry out a specific task, or be employed or contracted by a resource user. Qualified persons employed or hired by the province will either be providing advice to decision-makers, or carrying out activities, such as designing and building highways. Qualified persons hired by resource users provide advice and services to their employers or clients to help them obtain an authorization, and carry out activities in accordance with requirements. A number of regulations require the use of a qualified person so that government has some assurance that the proponent’s land use or resource development proposal and activities

meet, or will meet, legal requirements, thereby reducing the effort required for government review and oversight.

The Ministry of Transportation and Infrastructure relies heavily on contracted engineering professionals because only professional engineers can do the work and because they do not have sufficient qualified staff to undertake the work in-house.

## 6.2 Exclusivity

Three of the legislated self-regulating professional associations working in the natural resource sector have the exclusive right to practice their profession in British Columbia – Association of Professional Engineers and Geoscientists of British Columbia, the Association of British Columbia Forest Professionals, and the Association of British Columbia Land Surveyors. In order to practice engineering, geoscience, forestry or land surveying in BC, a practitioner must be registered in the appropriate association. The use of these professionals may in some cases have been more attributable to the exclusive right to practice than legislation pertaining to a specific task or function.

## 6.3 Hazards addressed

Another significant distinction observed in the various functions that qualified persons perform is that the potential hazards related to the proposed work might fall either into the realm of public safety or environmental safety, and that these two content areas likely had different risk levels associated with them, and different considerations with respect to reliance on the work of qualified persons.

## 7 Accountability and Liability

The qualified persons identified in the inventory likely have a range of degrees of accountability and liability, and these will be specific to the QP, the legal construct, and the situation. Some general information pertaining to liability and accountability of professionals was found, but none for accredited practitioners.

The accountability of self-regulating professionals is influenced by the legal basis and structure of the regulating body. The self-regulating professions must control matters of competency, behaviour and accountability of their members. Through their Acts, qualification standards, bylaws and codes of ethics, continuing competency programs, peer support, discipline programs and other activities, the professions exercise considerable influence over the degree to which an individual professional can be held accountable, and therefore the extent to which they can be relied upon. (Professional Reliance Task Force, 2006).

From another source:

Professionals are liable to their client to perform the terms of the contract for their services with due care and diligence. They are also liable to the client and possibly third parties such as local governments or owners adjacent to the site of particular work for any careless conduct (negligence) depending on the activity and the relationship to the party. A professional may be liable if they do not exercise the skill, care and diligence which may reasonably be expected of a person of ordinary competence in that profession, measured by the professional standards at the time of their work

Because professionals hold themselves out as having expertise (being an expert) in a certain field or profession, they are expected to exhibit a greater standard of care in their work. Not all of their mistakes will give rise to liability. The courts do not expect perfection, but a professional may be liable if they do not exercise the skill, care and diligence which may reasonably be expected of a person of ordinary competence in that profession, measured by the professional standards at the time of their work. Standards of care will vary between professions and in relation to tasks undertaken. For example professionals may be required to exhibit a higher standard of care where they are members of a roster of professionals who are held out to be qualified for a particular task that requires a higher degree of skill, experience and/or education than the average person in their profession. (Mitchell, 2004).

## 8 Conditions that support the use of qualified persons.

In order for the use of qualified persons to be an effective and practical option, a few elements must be in place.

1. An organization that is responsible for determining that qualified persons are **competent** to do the work to the desired standard, or to a level expected when practicing within their area of expertise.
2. Mechanisms to encourage QPs to perform work to the required standards, and to be **accountable** for their work.
3. A body of **guidance** that establishes objectives or standards that the work of qualified persons must meet. Standards may be technical, procedural or other standards related to the quality of the work. The standards may be established by the admitting or accrediting organization, or government, or a third party, or any combination.

The Professional Reliance Task Force (2006) identified a number of criteria that must be met for a self-regulating profession to be effective:

1. A well established professional culture, including a commitment to place duty above self-interest or personal gain;
2. Clear, consistent and high standards for admission;
3. The knowledge and ability to set clear professional standards/codes of conduct and ethics to be followed by members;
4. Continuing competency and quality assurance programs;
5. The ability and willingness to hold members accountable through established, functional and transparent investigation and discipline procedures; and
6. Sufficient capacity and infrastructure to discharge its duties and achieve the intent of the legislation.

## 9 Conclusion

While many different QPs conduct work in many different resource sectors, and conduct different activities within each resource sector, there are functional similarities in the nature of the work

performed, and common means by which persons can become QPs. Knowledge of these similarities may assist staff and stakeholders to identify new opportunities for the effective use of QPs. There is also considerable opportunity for sharing information, standards and techniques related to the use of QPs across resource sectors and activities.

## 10 References

Bauer and Webber Atkins, 2013. "Mechanisms to enable or support the use of qualified persons in the natural resource sector".

Mitchell, 2004. Issues associated with shifts in accountability and increased reliance on qualified professionals. Ministry of Environment internal report.

Professional Reliance Task Force, 2006. Professional reliance in forest and range management in British Columbia: From concept to practice. Committee report.

## Appendix 1

### Contributors to the Qualified Persons Inventory

Name	Agency
Garth Webber Atkins, Chair	Ministry of Forests, Lands and Natural Resource Operations
Marty Roberts	Ministry of Environment
Dirk Nyland, Greg Czernick	Ministry of Transportation and Infrastructure
Maureen Tait	Ministry of Forests, Lands and Natural Resource Operations
Butch Morningstar, Ron Bronstein, Silvana Costa	Ministry of Energy and Mines
Nathan Hagan-Braun, Alison Coyne	Ministry of Forests, Lands and Natural Resource Operations
Brian Barber	Ministry of Forests, Lands and Natural Resource Operations
Andrew Spence	Oil and Gas Commission



## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Authorization, and/or activity, e.g. Pesticide Use Forest Stewardship Plan	e.g. P. Eng., R.P.Bio., etc.	State act or regulation, If no legal requirement, identify policy, or other source, or identify as business practice.	Identify what work the professional carries out.	
<b>Ministry of Environment</b>				
Environmental Assessments of Projects	As required	EAA	<ul style="list-style-type: none"> <li>• Proponent required to submit material prepared by a QP</li> <li>• Provision of technical review on behalf of MoE</li> <li>• Application Information Requirements (AIR) provided by prescribed QP</li> </ul>	
General: Use of QPs during an Application Review.	As required	Environmental Management Act  As determined by the “Director’s” authority to assess an application and issue an authorization.	<ul style="list-style-type: none"> <li>• Provide independent advice to Director.</li> <li>• Proponent required to retain QP by Director.</li> </ul>	
General: Response to Non-Compliance or pollution prevention/abatement .	As required	Environmental Management Act As required by a Director’s authority to issue an order.	<ul style="list-style-type: none"> <li>• In issuing an Order, Director may require the use of QP</li> </ul>	
Contaminated Sites	Approved Professional (Contaminated Sites Approved Professional)	Environmental Management Act	<ul style="list-style-type: none"> <li>• Risk Assessments</li> <li>• Standards</li> </ul>	An independent society administers Contaminated Sites Approved Professionals.

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
				Ministry rosters APs
Soil Amendments	<p>Qualified Professional in relation to a duty or function under this code, means an individual who</p> <p>(a) is registered in British Columbia with a professional organization, is acting under that organization's code of ethics, and is subject to disciplinary action by that organization, and</p> <p>(b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function;</p>	Code of Practice for Soil Amendments	<ul style="list-style-type: none"> <li>• Prepare Land Application Plan</li> <li>• Certification that plan was followed</li> </ul>	

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Composting	Qualified Professional	Environmental Management Act Organic Matter Recycling Regulation	<ul style="list-style-type: none"> <li>• Prepare Land Application Plan</li> <li>• Certification that plan was followed</li> </ul>	
Discharge of Water from Coalbed Gas Operations	Qualified Professional	Environmental Management Act  DPWCGO Regulation	<ul style="list-style-type: none"> <li>• Summary report on corrective action</li> <li>• Assessment report</li> <li>• Compliance and assessment monitoring report</li> <li>• Receiving environment baseline assessment report</li> <li>• Produced water discharge analysis</li> <li>• Sampling and analysis</li> <li>• Certification of reports and assessments</li> </ul>	
Discharge of wastes from Slaughter and Poultry Processing Industries	Qualified Professional	Code of Practice for the Slaughter and Poultry Processing Industries Environmental Management Act	<ul style="list-style-type: none"> <li>• Plan for subsurface wastewater discharge</li> <li>• Nutrient management plan for waste water irrigation</li> <li>• Landfill evaluations</li> </ul>	
Finfish Aquaculture Waste Control	Qualified Professional	Environmental Management Act  FAWC Regulation	<ul style="list-style-type: none"> <li>• Supervision of monitoring and sampling</li> </ul>	
Hazardous Waste	<b>Proposed:</b> 2 types of Qualified Professionals:	<b>Proposed amended HW Regulation</b> (anticipated: late Fall 2010 or Winter)	<ul style="list-style-type: none"> <li>• Design and specifications</li> <li>• Facility management plan</li> <li>• Operational plan</li> </ul>	The type of document submitted and work performed determine the type QP that is required. Some work can

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
	1. Company QP and Independent QP	2011)  Environmental Management Act	<ul style="list-style-type: none"> <li>• Design of environmental monitoring program</li> <li>• Assessment of environ. monitoring program and data</li> <li>• Contingency plan for facilities</li> <li>• Closure plan</li> <li>• Demonstration trial reports</li> <li>• Treatment process</li> <li>• Delisting protocol</li> <li>• Facility audits</li> <li>• Annual report</li> <li>• Spill assessment report</li> <li>• Closure plan report</li> </ul> <p>Determination of financial security</p>	<p>be done by a company QP but an independent QP must still review, sign off and certify the work/document.</p> <p>Certification must indicate:</p> <ul style="list-style-type: none"> <li>• recommendations/plans meet and will fulfill requirements of the regulation</li> <li>• List which documents certification is for</li> <li>• That all requirements of a QP are met</li> <li>• Type of QP the professional is</li> </ul> <p>The Ministry retains the “approval” function for selected documents/work.</p>
Landfill Gas Management	Qualified Professional	Environmental Management Act  LGM Regulation	<ul style="list-style-type: none"> <li>• Initial landfill gas generator assessment</li> <li>• Landfill gas management facilities design plan</li> <li>• Certification of facilities installed in accordance with plan</li> <li>• Shut down report</li> <li>• Certify shut down report</li> <li>• Supplementary assessments and reports</li> <li>• Certification of assessments and reports</li> </ul>	

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Municipal Wastewater	<p>Qualified Professional:</p> <p>A scientist or technologist specializing in a particular applied science or technology including, but not necessarily limited to, agrology, biology, chemistry, engineering, geology, or hydrogeology and</p> <p>(a) who is registered in British Columbia with their appropriate professional organization, acting under that association's Code of Ethics and subject to disciplinary action by that association, and</p> <p>(b) who, through suitable education, experience, accreditation and knowledge, may be reasonably relied on to provide advice within</p>	<p>Environmental Management Act</p> <p>Municipal Wastewater Regulation</p>	<ul style="list-style-type: none"> <li>• Prepare design plan</li> <li>• Prepare operating plan</li> <li>• Prepare a receiving environment monitoring plan</li> <li>• Conduct and complete an environmental impact study</li> <li>• May train an operator</li> </ul>	

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
	their area of expertise			
	As above	Environmental Management Act  Municipal Wastewater Regulation	<ul style="list-style-type: none"> <li>• Outfalls; analysis and design.</li> <li>• Reclaimed Water Applications: Conduct impact study</li> <li>• Design discharges to ground</li> <li>• Recommend to Director reduced constructed drain field area.</li> </ul>	
	Environmental Operator	Environmental Management Act  Municipal Wastewater Regulation	<ul style="list-style-type: none"> <li>• Operate municipal wastewater system</li> </ul>	
	<ul style="list-style-type: none"> <li>• CA; CIP / FCIP; CMA; CGA</li> <li>• P.Eng</li> <li>• PGeo</li> <li>• Other</li> </ul>	Municipal Wastewater Regulation	<ul style="list-style-type: none"> <li>• Review and recommend acceptability of an Assurance Plan</li> </ul>	
Organic Matter Recycling	Qualified Professional	Environmental Management Act  OMR Regulation	<ul style="list-style-type: none"> <li>• Prepare and sign land application plan</li> <li>• Complete an Environmental Impact Study when applicable</li> <li>• Prepare plans for constructing facilities</li> </ul>	
Mushroom Composting Pollution	Professional Engineer or Agrologist	Environmental Management Act	<ul style="list-style-type: none"> <li>• Prepare pollution prevention plan</li> <li>• Confirm review, evaluation and</li> </ul>	

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Prevention		MCPD Regulation	operating as designed letter	
Ozone Depleting Substances and Other Halocarbons	Approved Person	Environmental Management Act  ODSOH Regulation	<ul style="list-style-type: none"> <li>• Purchase an ODS</li> <li>• Service equipment</li> </ul>	AP holds appropriate trade credentials in compliance with the <i>Industry Training Authority Act</i> , or meet other approval conditions
Solid Fuel Burning Domestic Appliances	Accredited Organization	Environmental Management Act  SFBDA Regulation	<ul style="list-style-type: none"> <li>• Testing appliances</li> </ul>	
Vehicle Dismantling and Recycling Environmental Planning	Qualified Professional	Environmental Management Act  VDREP Regulation	<ul style="list-style-type: none"> <li>• Prepare operating plan</li> </ul>	
Pesticide use	Qualified Monitor	Integrated Pest Management Act	<ul style="list-style-type: none"> <li>• assessment, monitoring and reporting services in relation to licences, permits, pesticide use notices</li> </ul>	
Pesticide Dispenser	Pesticide Dispenser	IPM Act	<ul style="list-style-type: none"> <li>• Sell pesticides</li> </ul>	
Pesticide Applicator	Pesticide Applicator	IPM Act	<ul style="list-style-type: none"> <li>• Apply pesticides</li> </ul>	
Water Use Community	Manager	Water Act	<ul style="list-style-type: none"> <li>• Conduct business of water users' community</li> </ul>	Manager approved by comptroller.
Groundwater	<ul style="list-style-type: none"> <li>• Qualified Professional</li> <li>• Qualified Well Driller</li> <li>• Qualified Well</li> </ul>	Water Act Groundwater Protection Regulation	<ul style="list-style-type: none"> <li>• Drill wells</li> <li>• Install pumps</li> </ul>	A form of rostering

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
	Pump Installer			
“Works in and about a stream” Approval	<ul style="list-style-type: none"> <li>• P.Eng</li> <li>• R.P.Bio.</li> </ul>	Water Act (S9 Approval)	<ul style="list-style-type: none"> <li>• Comptroller, RWM or engineer may require the use of a QP for complex or high risk works in or about a stream.</li> </ul>	
Water diversion structures, penstocks, etc.	<ul style="list-style-type: none"> <li>• P.Eng</li> </ul>	Water Act	<ul style="list-style-type: none"> <li>• QP certification for water licenses that involve large diversion structures, penstocks etc. (i.e. for all independent power projects) and for most dams</li> </ul>	
Riparian Areas	Qualified Environmental Professional <ul style="list-style-type: none"> <li>• R.P.Bio.</li> <li>• P.Ag.</li> <li>• R.P.F.</li> <li>• P. Eng.</li> <li>• Undertaken RAR training</li> </ul>	Fish Protection Act  Riparian Areas Regulation	<ul style="list-style-type: none"> <li>• Prepare assessment report</li> </ul>	
Sensitive Streams	Expert (as determined by the comptroller)	FPA Sensitive Streams Designation and Licensing Regulation	<ul style="list-style-type: none"> <li>• Provide evidence related to an application for the use of water</li> </ul>	
Forest and Range Practices	R.P.F.; R.P.Bio.; (P.Ag.)	FRPA ~ Government Actions Regulation	<ul style="list-style-type: none"> <li>• Chose appropriate practices to achieve GAR Order (WHAs, UWRs, FSWs)</li> <li>• Wildlife Habitat Features – determine actions to prevent damage or render ineffective.</li> </ul>	



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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
			<ul style="list-style-type: none"> <li>Under consideration: use of QPs for professional peer review and verification of intended outcomes.</li> </ul>	
Greenhouse Gas Emissions	Professionals must be part of a body accredited by an organization such as the Standards Council of Canada or the American National Standards Institute in accordance with ISO 14065, through a program developed under ISO 17011.	Reporting Regulation under the Greenhouse Gas Reduction (Cap and Trade) Act;	<ul style="list-style-type: none"> <li>Verification of greenhouse gas emissions reports submitted by BC industrial emitters</li> </ul>	
Greenhouse Gas Emissions	Professionals must be part of a body accredited by an organization such as the Standards Council of Canada or the American National Standards Institute in accordance with ISO 14065, through a program developed under ISO 17011.	Emission Offsets Regulation of the Greenhouse Gas Reduction Targets Act	<ul style="list-style-type: none"> <li>Validation and verification of offsets project plans and reports</li> </ul>	
Extended Producer Responsibility	Auditor qualifications: An accountant in public practice who is registered in a Canadian jurisdiction and who, as required by their professional license, has	Environmental Management Act  Recycling Regulation  Director's requirement	<ul style="list-style-type: none"> <li>Provide assurance for certain non-financial information included in stewardship program annual reports.</li> <li>A reasonable (high) level of assurance is required.</li> <li>All audit reports must be prepared</li> </ul>	

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
	suitable education, experience, knowledge and understanding of the subject matter and other engagement circumstances to assess the risks that the subject matter information may be materially misstated. In British Columbia “accountant in public practice” is limited to Certified General Accountants (CGA), Chartered Accountants (CA) and Certified Management Accountants (CMA).		<p>in accordance with the standard, ISAE 3000.</p> <ul style="list-style-type: none"> <li>• Non-financial information relates to stewardship program performance and is used to assess compliance with the Recycling Regulation.</li> </ul>	
			•	
<b>Ministry of Forests, Lands and Natural Resource Operations Land Act authorizations</b>				
<i>Extensive Agriculture</i> <ul style="list-style-type: none"> <li>• Ag lease, licence, land grant</li> </ul>	P.Ag. – eligibility report,  Archaeologist/QP	Policy	Determines parcel suitability for agriculture,  Fn historic site use	Professionals for each category of application undertake studies to determine site suitability for application purpose, identify conflicts

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
<ul style="list-style-type: none"> <li>• Legal description, site plan, map</li> <li>• Application certification, statement of agriculture holdings, confirmation that corporate requirements are met</li> <li>• Development plan</li> </ul>	<p>Surveyor</p> <p>Notary</p> <p>R.P.Bio.</p> <p>Surveyor</p>		<p>Prepares application sketch</p> <p>Confirms statutory declaration for cultivation requirements set by document</p> <p>Identifies environmental issues and conflicts, recommends appropriate mitigation</p> <p>Determines final tenure boundaries through legal survey</p>	<p>or issues and make recommendations on suitable mitigation, and project feasibility</p> <p>Similar for each program area.</p>
<p><i>Intensive agriculture</i></p> <p>Environmental</p> <p>Socio-community</p>	<p>Land, atmospheric, aquatic, wildlife, fish, archaeology, pollution prevention/remediation , surveyors</p> <p>Health services, FN</p> <p>P.Ag., P. Eng./QP, Archaeologist/QP, Surveyor</p>	<p>policy</p>		
<p><i>Independent Power Producers, wind, water</i></p> <ul style="list-style-type: none"> <li>•</li> <li>• Stream assessment</li> </ul>	<p>R.P.Bio.</p>	<p>Policy</p>	<p>Water flow availability, fish habitat impacts, fish presence or absence</p> <p>Upland wildlife conflicts, impact of roads, works and transmission lines on</p>	

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
<ul style="list-style-type: none"> <li>• Forestry</li> <li>• Geotechnical specialist</li> </ul>	R.P.F.		<p>wildlife and wildlife habitats, winter ranges. Identifies red/blue listed species conflicts</p> <p>Determines impact on forest base, allowable cut, timber licences, conflict with old growth forests</p>	
	PGeo		Identifies slope stability, suitability for support of transmission towers, road construction, penstock location	
	FN/ Archaeologist		Applicant consultation with FN, identifies conflicts with Aboriginal rights and title, negotiates, land use benefits with FN on behalf of applicant.	
	Surveyor		Prepares detailed application sketches including electronic mapping for submission with application, prepares legal surveys for final tenure documents	
	Notary		Confirms clean up requirements have been met	
	P. Eng./QP		Sets up road layout design to appropriate standards, oversees road construction, confirms roads have been built to appropriate standards and	

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
			rehabilitated when temporary roads involved.	
<i>Road applications (other than MOT)</i> <ul style="list-style-type: none"> <li>• Design</li> <li>• Stability</li> <li>• Archaeology</li> <li>• Water management</li> <li>• Fisheries, wildlife</li> </ul>	P. Eng./QP             FN/ Archaeologist Hydrologist R.P.Bio.	Policy	Sets up road layout design to appropriate standards, oversees road construction, confirms roads have been built to appropriate standards and rehabilitated when temporary roads involved.	
<i>Aquatic tenures</i> <ul style="list-style-type: none"> <li>• underwater assessment</li> </ul>	R.P.Bio.	Policy		
<i>Adventure tourism</i>  (larger applications)	R.P.Bio. Archaeologist	Policy		
<i>Log handling/storage</i> <i>Marinas</i> <i>Submerged cables,</i>	P. Eng./QP PGeo	Policy		

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
<i>hydro, telephone, communications</i>	R.P.Bio.		Determines impact on water quality, fish and fish habitat, recommends mitigation	
<i>Gravel quarry</i>	P. Eng. R.P.F. Hydrologist	Policy		
<i>Uplands communications site</i>  Access roads Communication lines	R.P.Bio. R.P.F. P. Eng.			
<i>Commercial</i>  Timber removal	R.P.F. Hydrologist P. Eng. R.P.Bio. Archaeologist/QP			
<i>Land valuation</i>	Accredited appraisers	Policy, procedures	Determine the value of a piece of Crown land for the purposes of establishing sale price or rent.	
<b>Ministry of Forests, Lands and Natural Resource Operations - Forestry</b>				

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Practice of Professional Forestry	R.P.F., RFT	Foresters Act		The Foresters Act defines the practice of professional forestry as including all the activities listed below. Other authority for the use of professionals is shown where applicable.
<b>Forest Operations</b>			The planning, executing, supervising and monitoring of forest harvesting and road construction operations to meet forest management objectives.	
Cutting Permit applications	R.P.F., RFT	Foresters Act District direction	Statement of conformance with FSP	Reduces transactional time/ MFR doesn't need to check for consistency with FSP
Appraisal data submission	R.P.F., RFT	Foresters Act Appraisal Manuals	Collection of any data used to determine a stump.Age rate including preparation of an appraisal map and cruise information	Opportunity to reduce MFR level of review of appraisal submissions

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Road layout , design, construction  Road permit applications	R.P.F., RFT, P. Eng., P. Geo RPCA R.P.Bio.	Forest Act Engineering Manual Engineers and Geoscientists Act Foresters Act	Various qualified professional specialists are used for; Road layout Road design Road construction Road deactivation Road inspection & maintenance Terrain stability assessments (TSAs) Stream assessments Archaeology assessments (RPCA) Wildlife assessments Visual impact assessments Site specific road design prescriptions (P. Eng.), e.g.: Retaining walls Structural earth fills Construction assurance	Professional Practice Guidelines for Terrain Stability Assessments (2003) focusing on the standard of practice for carrying out a TSA, are available at: <a href="http://www.apeg.bc.ca/ppractice/documents/ppguidelines/guidelinstsaforest.pdf">http://www.apeg.bc.ca/ppractice/documents/ppguidelines/guidelinstsaforest.pdf</a>  Professional Practice Guidelines for Management of Terrain Stability addressing when and where a TSA should be carried out and how to manage terrain stability issues where no TSA has been carried out, are available at: <a href="http://www.apeg.bc.ca/ppractice/documents/ppguidelines/guidelinesmanagementterrainstabilityforestsector.pdf">http://www.apeg.bc.ca/ppractice/documents/ppguidelines/guidelinesmanagementterrainstabilityforestsector.pdf</a>



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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Forest Road Bridge Design, Construction and Inspection	P. Eng. R.P.F. (has numerous limitations)	Engineers and Geoscientists Act Foresters Act Engineering Manual Forest Service Bridge Design and Construction Manual	Bridge and major culvert design <ul style="list-style-type: none"> <li>• Site assessments:                             <ul style="list-style-type: none"> <li>• Alignment</li> <li>• Hydrology</li> <li>• Foundation</li> <li>• Design requirements</li> </ul> </li> <li>• General arrangement design (P. Eng., R.P.F. – limited)</li> <li>• Structural design (P. Eng.)</li> <li>• Development of Design Aides (P. Eng.)</li> <li>• Assurance of construction (P. Eng., R.P.F. – limited)</li> <li>• Address fish habitat, fish passage</li> <li>• Address navigable waters</li> <li>• Bridge &amp; Major Culvert inspection, inspection oversight and load rating (P. Eng.)</li> </ul>	Forest Road Bridge Design, Construction and Inspection
Small Scale Salvage	R.P.F., RFT	Foresters Act Policy	Development of operational salvage plans	Reduces MFR review of application
<b>Forest Practices</b>				

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Forest Stewardship Plan	R.P.F.; R.P.Bio.; (P.Ag.). P. Eng., PGeo	Foresters Act/other professional acts	Prepare results/strategies consistent with objectives set by government Chose appropriate practices to achieve GAR Order (WHAs, UWRs, FSWs) Wildlife Habitat Features – determine actions to prevent damage or render ineffective. Certification of content for prescribed areas Some Results/strategies in FSP require assessments by qualified professionals	R.P.F.; R.P.Bio.; (P.Ag.). PEng,PGeo
FDP/SP amendments	R.P.F.	Forest Practices Code as defined in FRPA	Amendments to FDPs and SPs for areas harvested prior to FRPA	Reduces level of review required
TFL Management Plans	R.P.F.	Foresters Act	Writes management plan for TFL	
Silviculture surveys	Silvicultural Accredited Surveyor(can be an associate member of ABCFP), R.P.F., RFT	Policy/Foresters Act	Carry out silviculture surveys	Applies rigour and consistency to how surveys are done
Site Plans	R.P.F.		Assess forest stand characteristics, soil types, hydrology, topography, timber types, socio-economic values	
<b>Forest Protection</b>			The management of forest insects, disease, wildland fire and forest fuels as it relates to forest land management.	

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Fuel Management Plans  Community Wildfire Protection Plans	R.P.F., RFT	Foresters Act Policy	Planning harvesting and silviculture treatments to mimic the impacts of natural fire on forest values, visual quality, habitat, water, etc. requires a forest professional depending on the land use objectives in effect for the area .	Consultations with biologists and or agrologists may be required to address wildlife habitat and range management issues.
Forest Site Rehabilitation Plans	R.P.F., RFT	Foresters Act Policy	Prepare and approve site plans and prescriptions for harvest and identify objectives, results and strategies in FSPs/RSPs	
Post Wildfire Erosion Risk Impacts Rehabilitation Assessments and Prescriptions	PGeo P. Eng.	Foresters Act Policy (Post Wildfire Natural Hazards Risk Assessment - SIFR)	Wildfire impacted site rehabilitation assessments and prescription plans to offset soil erosion potential	See Post Wildfire Natural Hazards Risk Assessment – SIFR, and terrain stability assessments above
Wildfire fighting access impacts	PGeo P. Eng.	Foresters Act Practice	Prescribing rehabilitation and deactivation of fire guards, road and trail access developed/used for wildfire fighting to minimize environmental erosion risk	See terrain stability assessments above

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Prescribed Burns	R.P.F., RFT	Foresters Act Policy	Prepare and approve burn plan objectives for the purpose of addressing resource management objectives (i.e. wildlife habitat). This includes assessing the site, considering requirements specified in FSP's, other pertinent plans and legislation.	
<b>Forest Measurements</b>				
Scaling	Licensed Scaler (Can be an associate member of ABCFP)	Policy	Scale harvest volumes for billing	Reduces level of checking required by MFR
Cruising	Accredited Cruiser (Can become an associate member of ABCFP)	Foresters Act	Gather timber information for appraisal purposes	If member of ABCFP could reduce level of checking
Waste Surveying	Accredited Waste Survey (can become associate member of ABCFP), Scaler, R.P.F., RFT	Policy	Measure merchantable timber unharvested for billing and cut control purposes	Use of qualified persons reduces level of checking required
<b>Ministry of Energy and Mines</b>				
Mineral exploration permit – if road construction or drill pad construction are necessary.	<ul style="list-style-type: none"> <li>geotechnical engineer (Professional Geoscientist - PGEO)</li> </ul>	Section 18 Mines Act , and Part 10 + Health and Safety and Reclamation Code - authority to statutory decision	Professional design of roads and pads (stream crossings, stability analysis) Bulk sampling of rocks may require rock or soil mechanic (PGEO) for ponds, water management, and dump	. Not all applications require professional sign off, it may vary based on size and scope of operation

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
	<ul style="list-style-type: none"> <li>• Underground exploration may require geotechnical, ventilation, mechanical electrical engineers (Professional Geoscientist - PGEO)</li> <li>• Archaeologist</li> </ul>	maker to define permit requirements	and geochemistry stability. If an archaeologically significant site is found, the work of an archaeologist could be requested to identity the site and importance and make recommendations	
Reclamation, mineral exploration, when roads and/or drill pad construction	<ul style="list-style-type: none"> <li>• Agrologist when applicable</li> <li>• PGEO (hydrology, geophysical, geochemical)</li> <li>• PEng ( geotechnical)</li> </ul>	Same as above	Determines impact and defines reclamation needs	The need for these professionals will vary greatly depending on scale of the operation
Mines Act Permit: mine development (includes gravel pits/aggregates)	<ul style="list-style-type: none"> <li>• P.Engs: Mining, mechanical, electrical, civil, geotechnical, hydrology</li> <li>• Industrial Hygienist</li> <li>• May require chemical engineer , biologist, explosives engineer</li> </ul>	Same as above	Design and execution	

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Mines Act Permit: reclamation	<ul style="list-style-type: none"> <li>• Agrolgist</li> <li>• PGEOs (geophysical, geochemical)</li> <li>• P.Eng (geotechnical)</li> <li>• RP Bio</li> </ul>	Same as above	Professionals undertake studies and determine best reclamation plan and implementation.	
<b>Oil and Gas Commission</b>				-
Design of infrastructure for the extraction, gathering, processing and transmission oil and natural gas	Professional Engineer	Oil and Gas Activities Act Pipeline and Liquefied Natural Gas Facility Regulation Drilling and Production Regulation Engineers and Geoscientists Act Policy	<p>Ensure that infrastructure for oil and gas activities is designed in accordance with regulatory and statutory requirements and applicable standards and codes.</p> <ul style="list-style-type: none"> <li>- Qualified professional determines that all porous strata have been isolated from drilling fluid, allowing the use of toxic drilling fluids for well casing requirements (DPR s.18)</li> <li>- Professional engineer must design flare and incinerator systems (DPR s.44)</li> <li>- Professional engineer must sign and seal production facility as built documentation for conformance with standards (DPR s.78)</li> </ul>	<ul style="list-style-type: none"> <li>- Drilling and Production Regulation defines a qualified professional as a person who is licensed or registered as either a professional engineer or a professional geoscientist under the Engineers and Geoscientists Act.</li> <li>- Pipeline systems must be designed in accordance with CSA Z662</li> <li>- LNG facilities must be designed in accordance with CSA Z276</li> <li>- Production facilities must be designed in accordance with ASME B31.3</li> </ul>

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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Control of well during drilling or servicing	Enform Certification	DPR s.13	Enform supervisor's blowout certification or second-line supervisor's well control certification for driller, rig manager, and well permit holder's representative	
Conservation of oil and natural gas resources (special project orders)	Professional Engineers, Geologists and certified Engineer Technicians,	Oil and Gas Activities Act Drilling and Production Regulation Engineers and Geoscientists Act, ASTTBC Act	Ensure optimal recovery of oil and natural gas resources.	
Planning of positioning, timing, and routing of oil and gas infrastructure through the OGAA permitting process	Qualified Specialist	Policy (Environmental Protection and Management Guideline)	<p>Ensure that oil and gas activities are planned, constructed, and operated in accordance with environmental standards. The EPMG requires assessments from various professionals, but doesn't go as far as to define the specific profession.</p> <p>Many of the areas requiring a professionals input fall into some broad categories that can be adequately managed by various designations or qualified persons. Where more complex activities are proposed the Commission's expectations typically become more refined</p>	<ul style="list-style-type: none"> <li>• Wildlife Assessments &amp; Mitigation Plans (Wildlife Technician, Biologist or some other qualified person completes the work)</li> <li>• Stream Assessments (Wildlife Technical, Biologist or some other qualified person completes the work)</li> <li>• Complex Stream Crossing methods (P. Engineer)</li> <li>• Wildlife Monitors (Wildlife Technical, Biologist or some other qualified person)</li> <li>• Invasive Plant Management (Technician, P. Agrologist or Forester)</li> </ul>
	BC Land Surveyor	OGAA General Regulation	After completing a pipeline or receiving	

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		sections 24 and 25 Land Surveyors Act	a well permit, survey plans must be submitted to the Commission	
	RPF, RFT	Foresters Act Appraisal Manuals	Within the Peace and Fort Nelson Forest Districts, stumpage is calculated at a per hectare basis. Outside these forest districts, timber has to be appraised as per appraisal manuals.	
	Archaeologist	Heritage Conservation Act	Applications with new ground disturbance require an archaeologist to complete an assessment. Oil and gas activities impacting archaeological resources require mitigation strategies developed by an archaeologist	
	Agrologist	ALC Delegation Agreement	Appendix A of the OGC-ALC Delegation agreement states that the owner of the proposed oil and gas activity or pipeline obtains advice regarding the site assessment, construction of the development and reclamation of the land from a qualified reclamation specialist with appropriate training and a minimum of 2 years of experience	
Permitting of Aggregate Operations	Qualified professional	Policy	Borrow pit and aggregate operations must be developed and reclaimed following a plan prepared by a qualified professional	
Restoration and Waste Management activities				
Certificate of	Qualified Professional	Policy as detailed in OGC	Environmental site assessment for	



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Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Restoration Part 1		Information letter 06-14	potential contamination and confirmation of remedial activity	
Certificate of Restoration Part 2	Qualified Professional	Policy as detailed in OGC Information letter 06-14	Assessment of surface reclamation	
Waste Discharge Permits and approvals	Qualified professional	Policy	Technical assessment of waste discharge and potential for impact to the environment	
Engineered containment facilities for produced water and completion flowback fluid	Professional Engineer	Policy per Information letter 09-07	Storage pond Design	
Agricultural assessment of ALR lands post disturbance	Qualified Professional	Schedule B of Delegation agreement between ALC and OGC	Completes an assessment of reclamation.	
<b>Ministry of Transportation and Infrastructure (MoTI)</b>				
Design and Construction of Transportation Infrastructure	Professional Engineers/Professional Geoscientists in appropriate disciplines and as adjudicated for selection in the eRISP procurement process	<i>Transportation Act</i> and <i>Engineers and Geoscientists Act</i>	Carry out the practice of professional engineering or professional geosciences in the design and implementation of transportation infrastructure required by Ministry of Transportation and Infrastructure	The Ministry of Transportation and Infrastructure's electronic Registration, Identification, Selection and Performance evaluation (eRISP) system is an online registry for consultants and consulting firms who wish to provide engineering, technical and environmental consulting services on roadway projects.  eRISP assists in the selection of

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
				engineering and technical contracts valued at less than \$1 million. The information about consulting firms is securely stored and processed in a manner that ensures a confidential and fair selection process for ministry assignments on transportation projects.
Subdivision Approvals by Provincial Approving Officer (PAO)	Varies depending on the matter the PAO is seeking advice on e.g. A Geotechnical Engineer for slope stability or natural hazards issues or a Public Health Engineer for Health Authority matters.	<i>Land Title Act</i>	Varies depending on the matter the PAO is seeking advice on e.g. A Geotechnical Engineer for slope stability or natural hazards issues or a Public Health Engineer for Health Authority matters.	In British Columbia, a person may divide his or her property into one or more parcels and register them in the <a href="#">Land Title &amp; Survey Authority</a> . Before such a subdivision plan can be registered, however, the <a href="#">Land Title Act</a> , <a href="#">Strata Property Act</a> , <a href="#">Real Estate Development Marketing Act</a> and <a href="#">Local Government Act</a> of British Columbia require an official known as an Approving Officer to approve the plan.  For rural subdivisions the Approving Officer is situated in the Ministry of Transportation district offices.
<b>MoTI Environmental Management</b>				
Environmental Assessment for Design, Construction,	Will require a variety of Professionals (not all have specific	<i>Registered Professional Biologist Act</i>	Varies but includes field studies, reporting, enviro permitting	Professionals utilized to ensure work meets requirements of Provincial and/or Federal environmental review,

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
Operation of Transportation Infrastructure	Professional Associations but may specialize). <ul style="list-style-type: none"> <li>• Registered Professional Biologist</li> <li>• Wildlife Specialist</li> <li>• Species at Risk Specialist</li> <li>• Ecologist</li> <li>• Marine Biologist</li> <li>• Environmental impact Assessment</li> <li>• Entomology</li> <li>• Herpetology</li> <li>• Contaminated Sites</li> <li>• Freshwater Fishery (Aquatic) Specialist</li> <li>• Habitat Restoration Specialist (terrestrial or aquatic)</li> <li>• Weed Control Specialists</li> </ul>	May be other Professional Associations for specific specialties but many are specialized R.P.Bio.'s Others may have		permitting, regulatory requirements. Examples of permitting and regulations include BC Water Act, Federal Fisheries Act, Heritage Conservation Act, Contaminated Sites Regulation, Ministry of Health Regulations, Weed Act, etc.  Internal MoT Standard Specifications for Highway Construction, MoT Best Practices for Maintenance, Highway Environmental Assessment Process, Noise Policy may apply and do require Professionals for some activities.
	Archaeologists	BC Association of Professional Archaeologists		See above
	Air Quality Specialist	P.Eng. (usually)		See above
	Noise Specialist	P.Eng. (usually)		See above

## Appendix 2: Inventory of the use of qualified persons in natural resource management

Topic/Activity	Name or Type of Qualified Person	Authority (for use of qualified persons)	Function	Comment
	Environmental Impact Assessment Specialist	could be R.P.Bio., P.Eng., Planner etc		See above
	Erosion Control Specialists	Certified Professional in Erosion and Sediment Control		See above
	Environmental Construction Monitor	usually R.P.Bio.		See above
	Socio-Community Specialist	could be P.Eng or Planner or...		See above

### **Appendix 3**

#### **Legislated definitions of qualified persons**

##### **Sewerage Systems Regulation**

**"professional"** means a person who meets the requirements of section 7 (3) *[authorized persons]*;

7 (3) A person is qualified to act as a professional if the person

- (a) has, through education or experience, training in soil analysis and sewerage system construction and maintenance, and
- (b) is registered as a fully trained and practising member of a professional association that
  - (i) is statutorily recognized in British Columbia, and
  - (ii) has, as its mandate, the regulation of persons engaging in matters such as supervision of sewerage system construction and maintenance.

##### **Code of practice for the discharge of produced water from coalbed gas operations (*Environmental Management Act*)**

**"qualified professional"** , in relation to a duty or function under this code, means an individual who

- (a) is registered in British Columbia with a professional organization, is acting under that organization's code of ethics, and is subject to disciplinary action by that organization, and
- (b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function;

##### **Code of Practice for the Slaughter and Animal Processing Industry**

**"qualified professional"** , in relation to a duty or function under this code, means an individual who

- (a) is registered in British Columbia with a professional organization, is acting under that organization's code of ethics, and is subject to disciplinary action by that organization, and
- (b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function

##### **Integrated Pest Management Regulation (*Environmental Management Act*)**

**"qualified monitor"** means a person who has the prescribed qualifications;

### **Riparian Areas Regulation (Fish Protection Act)**

**"qualified environmental professional"** means an applied scientist or technologist, acting alone or together with another qualified environmental professional, if

(a) the individual is registered and in good standing in British Columbia with an appropriate professional organization constituted under an Act, acting under that association's code of ethics and subject to disciplinary action by that association,

(b) the individual's area of expertise is recognized in the assessment methods as one that is acceptable for the purpose of providing all or part of an assessment report in respect of that development proposal, and

(c) the individual is acting within that individual's area of expertise;

### **Agricultural Waste Control Regulation (Environmental Management Act)**

..a person with professional qualifications in the field of environmental assessment and licensed to practice in British Columbia,

### **Ozone depleting substances and other halocarbons regulation**

**"approved person"** means a person who

(a) holds appropriate trade credentials or is an indentured trainee or apprentice in compliance with the *Industry Training Authority Act* or, if that Act is not applicable, is qualified in the appropriate trade sector by

(i) having successfully completed a recognized trade school program, or

(ii) having at least one year of supervised practical service experience,

(b) has successfully completed an environmental awareness course approved by Environment Canada and the minister's ministry, and

(c) has, if servicing motor vehicle air conditioning systems on or after October 1, 1997, successfully completed a motor vehicle air conditioning course approved by the minister's ministry

unless the approval is cancelled or suspended under section 18 of the *Environmental Management Act*;

#### Appendix 4. Qualified persons identified in the inventory

Qualified Person	Adjudicating Body	Designation
Registered Professional Forester	Association of BC Forest Professionals	R.P.F.
Registered Forest Technologist	Association of BC Forest Professionals	RFT
Professional Engineer	Association of Professional Engineers and Geoscientists of BC	P Eng
Professional Geoscientist	Association of Professional Engineers and Geoscientists of BC	P. Geo
Professional Agrologist	Institute of Professional Agrologists of BC.	P. Ag
Registered Professional Biologist	College of Applied Biology	R.P.Bio.
Professional Archaeologist	BC Association of Professional Archaeologists	
Professional Chemists	Association of the Chemical Profession of BC	
Notary	The Society of Notaries Public of BC	
BC Land Surveyor	Association of British Columbia Land Surveyors	B.C.L.S.
Licensed Scaler	Ministry of Forests, Lands and Natural Resource Operations	
Accredited Cruiser	Association of BC Forest Professionals	
Accredited Waste Surveyor	Association of BC Forest Professionals	
Contaminated Sites Approved Professional	Contaminated Sites Approved Professionals Society	
<b>Qualified persons referenced in regulation</b>		
Qualified professional for advice on soil amendments		
Qualified professional		
QPs for municipal wastewater regulation	The Association of Professional Engineers and Geoscientists of BC, the Institute of Agrologists, the Applied Technologists and Technicians, and the College of Applied Biology are four examples	none
Expert consultants	CA CIP FCIP CMA CGA P.Eng P. Geo Other	
Approved person		
Authorized persons	APEGBC	P.Eng
Qualified monitor		
Qualified professional		
Qualified Well Driller	Water comptroller, MOE	Qualified well driller
Qualified Well Pump installer	Water comptroller, MOE	Qualified Well Pump installer
Qualified environmental	As for R.P.Bio., P.Ag., R.P.F., P. Eng. and RAR	

**Appendix 4. Qualified persons identified in the inventory**

professional	training.	
Expert	Water comptroller	
<b>Accredited Professionals</b>		
Pesticide Applicator	MOE	
Pesticide Dispenser	MOE	
Manager	MOE Water Comptroller	
Blasting (Open Pit and Underground)	Mines ministry	
Shift Boss (Open Pit and Underground)	Mines ministry	
Mine Rescue (Open Pit Surface and Underground)	Mines ministry	
Fire Boss	Mines ministry	
First Class and Second Underground Coal (Management)	Mines ministry	
Coal Blasting Certificate	Mines ministry	
<b>Specialists</b>		
Wildlife Specialist		RP Bio
Species at Risk Specialist		RP Bio
Ecologist		R.P.Bio.
Marine Biologist		R.P.Bio.
Hydrologist		P. Geo
Entomology		RP Bio
Herpetology		RP Bio
Contaminated Sites		
Freshwater Fishery (Aquatic) Specialist		RP Bio
Habitat Restoration Specialist (terrestrial or aquatic)		RP Bio
Weed Control Specialists		RP Bio P Ag
Air Quality Specialists		Usually P. Eng.
Environmental impact Assessment Specialist		R.P.Bio., P Eng, Planner, etc.
Noise Specialist		Usually P. Eng.
Erosion control specialist		Certified Professional in Erosion and Sediment Control
Environmental Construction Monitor		Usually R.P.Bio.
Socio-community specialist		P Eng or Planner, possibly other