

**QUALITY MANAGEMENT GUIDELINES** 

### DIRECT SUPERVISION

VERSION 1.3 PUBLISHED JANUARY 9, 2018



VERSION 1.3, JANUARY 9, 2018 ©2018 ENGINEERS AND GEOSCIENTISTS BRITISH COLUMBIA ALL RIGHTS RESERVED.

COVER PHOTOGRAPH © HUCI/FOTALIA

### TABLE OF CONTENTS

ABBR	EVIATIONS	iii
1.0	DEFINITIONS	1
2.0	PURPOSE AND SCOPE	3
3.0	GUIDELINES FOR PRACTICE	6
3.1	WHAT IS THE REQUIREMENT WHEN DELEGATING WORK	6
3.2	HOW IS ACTIVE INVOLVEMENT DEMONSTRATED	6
3.3	HOW IS ADEQUATE SUPERVISION OF FIELD REVIEWS DEMONSTRATED	7
3.4	HOW IS RESPONSIBILITY FOR ENGINEERING AND GEOSCIENCE DECISIONS DEMONSTRATED	8
3.5	HOW IS THE APPROPRIATE DEGREE OF DIRECT SUPERVISION DEMONSTRATED	9
3.6	HOW IS DIRECT SUPERVISION DEMONSTRATED	11
3.7	WHAT ARE EXAMPLES OF INADEQUATE DIRECT SUPERVISION	12
3.8	RESOURCES FOR MANAGING DIRECT SUPERVISION	13
4.0	REFERENCES AND RELATED DOCUMENTS	15

QUALITY MANAGEMENT GUIDELINES
DIRECT SUPERVISION

QUALITY MANAGEMENT GUIDELINES
DIRECT SUPERVISION

 іі

### **ABBREVIATIONS**

ABBREVIATION	TERM
BC	British Columbia
EIT	Engineer-in-Training
GIT	Geoscientist-in-Training
QM	Quality Management

QUALITY MANAGEMENT GUIDELINES
DIRECT SUPERVISION

\_\_\_\_ iv

### 1.0 DEFINITIONS

The following definitions are specific to this Quality Management (QM) guideline.

TERM	DEFINITION
Act	Engineers and Geoscientists Act [RSBC 1996] Chapter 116.
Bylaws	The Bylaws of Engineers and Geoscientists BC made under the Act.
Delegation (and derivatives)	The directing of non-licensed individuals, or Engineering/Geoscience Professionals who do not have sufficient knowledge and experience to work independently, to undertake certain professional engineering or professional geoscience activities, or make certain professional engineering or geoscience decisions on behalf of a professional engineer, professional geoscientist, or Licensee who retains professional responsibility for the work.
Direct Supervision (and derivatives)	The <i>Act</i> defines Direct Supervision as the responsibility for the control and conduct of the engineering or geoscience work of a Subordinate.
Engineering/Geoscience Professional(s)	Professional engineers, professional geoscientists, and licensees who are licensed to practice by Engineers and Geoscientists BC.
Engineers and Geoscientists BC	The Association of Professional Engineers and Geoscientists of the Province of British Columbia, also operating as Engineers and Geoscientists BC.
Licensee	A non-resident engineer or geoscientist licensed under the <i>Act</i> or the holder of a limited licence under the <i>Act</i> .
Organization	Any firm, corporation, partnership, government agency, sole proprietor, or other type of legal entity that employs Engineering/Geoscience Professionals and provides products and/or services requiring the application of professional engineering and/or professional geoscience.
Seal (and derivatives)	Noun: The Engineering/Geoscience Professional's Seal. It is either a rubber Seal or Electronic Seal, and is collectively called "Seal" in this QM guideline.  Verb: To affix an Engineers and Geoscientists BC professional's Seal, along with signature and date, to a document. The handwritten date or the digitally embedded date associated with the digital signature must be the date of Sealing and signing: this date may differ from the date on the document.

QUALITY MANAGEMENT GUIDELINES DIRECT SUPERVISION

1

TERM	DEFINITION
Subordinate	Any person Directly Supervised by an Engineering/Geoscience Professional who assists in the practice of professional engineering or professional geoscience; for example, an Engineer-in-Training (EIT), a Geoscientist-in-Training (GIT), another person not registered or licensed to practice professional engineering or professional geoscience, or another Engineering/Geoscience Professional.
Supervising Engineering/Geoscience Professional	An Engineering/Geoscience Professional who has professional responsibility for the technical basis, intent, and accuracy of the activities carried out involving the practice of professional engineering or professional geoscience; whose professional skill and judgment are embodied in those activities; and whose responsibilities may include advising the client or employer, Directly Supervising the work of Subordinates, and Directly Supervising the review of material and completed aspects of the work, which could include the implementation.

### 2.0 PURPOSE AND SCOPE

2.1 The *Act* s. 1(1) defines Direct Supervision as follows:

"'direct supervision' means the responsibility for the control and conduct of the engineering or geoscience work of a subordinate:"

2.2 The Act s. 2(6) and 2(7) state the following:

"(6) Subject to the bylaws made under section 10 (1) (b.2), nothing in this Act or the bylaws prevents a person from assisting in the performance of any professional service or work of the kind described in the definition of "practice of professional engineering" in section 1 (1) if a professional engineer directly supervises and assumes full responsibility for the service or work."

and

- "(7) Subject to the bylaws made under section 10 (1) (b.2), nothing in this Act or the bylaws prevents a person from assisting in the performance of any professional service or work of the kind described in the definition of "practice of professional geoscience" in section 1 (1) if a professional geoscientist directly supervises and assumes full responsibility for the service or work."
- 2.3 Engineering/Geoscience Professionals must meet the requirement of Direct Supervision when they Delegate activities involving the

practice of professional engineering or professional geoscience to a Subordinate. This QM guideline is intended to assist Engineering/Geoscience Professionals in establishing and maintaining a documented process for the Delegation of professional engineering and professional geoscience work to a Subordinate working under Direct Supervision that meets the intent of the *Act*, including the following:

- Basic and general guidance on Direct Supervision
- Active involvement
- · Adequate Supervision of field reviews
- Responsibility for professional engineering or professional geoscience decisions
- Appropriate consideration of experience levels when Delegating professional tasks
- 2.4 The holder of a limited licence (Eng.L. or Geo.L.) can provide Direct Supervision of only such professional engineering or professional geoscience work that is within his or her defined scope as specified in his or her limited licence.
- 2.5 To comply with the *Act*, Engineering/
  Geoscience Professionals must ensure that
  the professional engineering or professional
  geoscience work Delegated to a Subordinate
  is carried out under the Engineering/
  Geoscience Professional's Direct
  Supervision.

QUALITY MANAGEMENT GUIDELINES DIRECT SUPERVISION

- 2.6 These obligations apply to Engineering/ Geoscience Professionals working in their professional capacity in all sectors when their work applies to or is used in any of the following circumstances:
  - Ongoing engineering or geoscience work
  - Projects with a defined start and finish
  - Products and services requiring the application of professional engineering or professional geoscience
  - Engineering or geoscience deliverables such as reports, drawings, specifications, or other deliverables
  - Implementation or use of engineering and geoscience work as may be found in a manufacturing facility, technology company, operations, or utilities work
  - Construction or installation of engineering or geoscience work
  - Implementation or construction carried out by others
  - Implementation or construction being carried out by the Engineering/Geoscience Professional's Organization's own forces
  - Engineering or geoscience work carried out for use internally within the Engineering/Geoscience Professional's Organization
  - Engineering or geoscience work carried out for others
- 2.7 Terminology used across sectors may vary from terminology used in this QM guideline. However, the intent and the obligations of Engineering/Geoscience Professionals in all sectors remain the same. Sectors may include, but are not limited to the following:

- Aerospace
- Construction
- Consulting
- Education
- Government
- Healthcare
- High technology
- Light and heavy industry
- Marine engineering and naval architecture
- Manufacturing
- Natural resources
- Operations
- Research and development
- Utilities
- 2.8 This QM guideline is a minimum standard for Engineering/Geoscience Professionals. Failure to meet the intent of this QM guideline may be evidence of unprofessional conduct and may give rise to disciplinary proceedings by Engineers and Geoscientists BC.
- 2.9 At times, some professional engineering and professional geoscience tasks are carried out by others, subject only to a final review by the Engineering/Geoscience Professional prior to their taking responsibility for the work. This level of Direct Supervision may not be sufficient to fulfill the Engineering/ Geoscience Professional's Direct Supervision obligations set out in the Act.

2.10 Where there has been limited prior involvement and the work involves the application of the Engineering/Geoscience Professional's Seal, guidance is found in the Engineers and Geoscientists BC *Quality Management Guidelines – Use of Seal* (Engineers and Geoscientists BC 2017).

### 3.0 GUIDELINES FOR PRACTICE

### 3.1 WHAT IS THE REQUIREMENT WHEN DELEGATING WORK

- 3.1.1 When Delegating professional engineering or professional geoscience work, the Supervising Engineering/Geoscience Professional, in order to comply with the *Act's* requirement for Direct Supervision, must be aware of the work and actively involved in the work prior to the Supervising Engineering/Geoscience Professional taking responsibility for the work.
- 3.1.2 The six elements listed below should be considered when determining whether a Supervising Engineering/Geoscience Professional has met this standard and has satisfied his or her duty for Direct Supervision.

### 3.2 HOW IS ACTIVE INVOLVEMENT DEMONSTRATED

- 3.2.1 The Supervising Engineering/Geoscience
  Professional should have knowledge of all
  stages of the project. He or she must
  demonstrate active involvement and
  ongoing interaction and input.
- 3.2.2 The exemption clause<sup>1</sup> in the *Act* is for unlicensed individuals who assist an Engineering/Geoscience Professional in the performance of professional engineering or

- professional geoscience. The exemption clause does not allow those individuals to take responsibility for professional engineering or professional geoscience work or services.
- 3.2.3 Engineering/Geoscience Professionals have an obligation to both direct and monitor the activities of their Subordinates who are assisting the Supervising Engineering/ Geoscience Professional. While direction may be satisfied by active involvement in the initial stages or concept development, monitoring implies an awareness of activities and work throughout the process; therefore, Supervising Engineering/ Geoscience Professionals who conduct only a final review of documents and are unaware of the work prior to those documents reaching them for review do not fulfill their Direct Supervision obligation.
- 3.2.4 Active involvement may be demonstrated through knowledge of the project development or history of the project, input on earlier drafts, review of particular elements at earlier stages, or evidence of regular consultation of the Subordinates with the Supervising Engineering/ Geoscience Professional throughout the project.

QUALITY MANAGEMENT GUIDELINES
DIRECT SUPERVISION

<sup>&</sup>lt;sup>1</sup> Act, s.2(6) and 2(7).

- 3.2.5 Indicators of appropriately Supervised Subordinates may include the following:
  - Physical presence of both the Supervising Engineering/Geoscience Professional and the Subordinates at the same workplace at the same time
  - Availability of the Supervising Engineering/Geoscience Professional for regular and ongoing communication with the Subordinates
  - Periodic documented reviews of the work or services by the Supervising Engineering/Geoscience Professional
  - Consultation by the Subordinates with the Supervising Engineering/Geoscience Professional throughout the project
  - Adequate documentation of the Supervisory activities of the Supervising Engineering/Geoscience Professional

## 3.3 HOW IS ADEQUATE SUPERVISION OF FIELD REVIEWS DEMONSTRATED

- 3.3.1 The Engineering/Geoscience Professional must carefully instruct Subordinates who carry out field reviews.
- 3.3.2 When an Engineering/Geoscience
  Professional is directing a Subordinate with
  respect to undertaking field review tasks,
  the Supervising Engineering/Geoscience
  Professional must ensure that such work is
  carried out in accordance with the definition
  of Direct Supervision in the *Act*. Direct
  Supervision of a task that occurs outside the
  office is challenging; a Supervising
  Engineering/Geoscience Professional must

take care to ensure that all field reviews meet the standard expected of an Engineering/Geoscience Professional.

3.3.3

- Direct Supervision of a field review by a Subordinate would typically require that the Subordinate be given specific instructions on what to observe, check, confirm, test, record, and report back to the Supervising Engineering/Geoscience Professional. Where circumstances go beyond such activities, or where professional engineering or professional geoscience decisions or judgments are required, the Subordinate must consult the Supervising Engineering/Geoscience Professional so that the professional engineering or professional geoscience decisions or judgments are made by the Supervising Engineering/Geoscience Professional and he or she can provide further direction or instruction as appropriate at that point.
- 3.3.4 Adequate Direct Supervision of field reviews will require the Supervising Engineering/Geoscience Professional to:
  - consider the project and determine whether or not it is appropriate to Delegate one or more of the field reviews to a Subordinate;
  - consider the level of complexity, or critical nature, of the field review to determine whether the quality and accuracy of observations made by a Subordinate may be relied upon;
  - consider, in light of the complexity of the project, whether the Subordinate carrying out the field review has the

- appropriate level of training and experience;
- discuss with the Subordinate, prior to the field review, the level of effort to be exercised, the level of detail required when reporting, and specific aspects of the construction or implementation activities which are to be included in the field review; and
- examine the field review reports prepared by the Subordinate upon receipt, and follow up as required.

# 3.4 HOW IS RESPONSIBILITY FOR ENGINEERING AND GEOSCIENCE DECISIONS DEMONSTRATED

- 3.4.1 The Engineering/Geoscience Professional must have some degree of involvement in all engineering or geoscience decisions made.
- 3.4.2 The Act introduces the concept of assistance with respect to the role of Subordinates.

  Assisting implies some degree of subordination, support, or contribution, but does not imply action. The Subordinates, therefore, must not make engineering or geoscience decisions except in consultation with and with the approval of the Supervising Engineering/Geoscience Professional; instead, they should be working to carry out or implement decisions made by the Supervising Engineering/ Geoscience Professional.
- 3.4.3 Responsibility for engineering or geoscience decisions does not require that the Supervising Engineering/Geoscience Professional actively makes each and every

decision relevant to a project. Codes and standards of practice that are accepted by the Supervising Engineering/Geoscience Professional can guide much of the detailed work; however, he or she must have considered the relevant issues, monitored the Subordinate who carried out the work, gave directions where applicable, and reviewed each decision and the reasons for making it.

- 3.4.4 Indicators of appropriate Direct Supervision of Subordinates may include the following:
  - Availability of the Supervising
     Engineering/Geoscience Professional to answer questions regarding the decisions made by the Subordinate during work on the project
  - The Supervising Engineering/Geoscience Professional's awareness of relevant engineering or geoscience criteria, methods of analysis, selection of materials and systems, field conditions, practice constraints, economics of alternate solutions, and environmental considerations

#### 3.4.5 **Example 1**

Mr. PEng is a "chief engineer" at a large engineering firm where he affixes his Seal to all engineering documents prepared by the Subordinates who report to him.

#### 3.4.6 <u>Unacceptable Practice</u>

Due to the size of the Organization and the number of Subordinates working under him, Mr. PEng has very little contact with his Subordinates and rarely conducts detailed reviews of their designs. Even though others in his Organization identify this practice as unacceptable, when questioned, Mr. PEng states that he considers his Supervisory duties are satisfied by his role in helping to establish the initial design concepts and requirements. Mr. PEng feels that his careful hiring practices ensure a high quality of work; therefore, his Subordinates do not require further detailed Supervision.

#### 3.4.7 <u>Acceptable Practice</u>

Mr. PEng is involved in establishing design and engineering criteria for the projects under his Direct Supervision. Throughout their development, he reviews progress reports, checks various design elements, and provides input and further direction where needed. Mr. PEng is available for consultation throughout the process, should any unforeseen problem arise or should his general advice be needed. Once work is completed, he carries out a detailed review of the documents and completed designs prior to Sealing and signing the documents.

# 3.5 HOW IS THE APPROPRIATE DEGREE OF DIRECT SUPERVISION DEMONSTRATED

- 3.5.1 The level of Direct Supervision may be adapted to reflect the nature of the specific Supervisor-Subordinate relationship and their respective experience levels.
- 3.5.2 In both engineering and geoscience, the working relationship between the Supervising Engineering/Geoscience Professional and a senior experienced Subordinate may span a number of years

or even the length of a career. It is likely that under these circumstances, the extent of Direct Supervision required will evolve to reflect the relative experience of both parties. This situation does not imply that a Supervising Engineering/Geoscience Professional may substantively waive or relegate their Direct Supervision of a senior experienced Subordinate. It is intended simply to recognize the realities of such a relationship.

- 3.5.3 For Subordinates who are EITs or GITs working their way through the competency building and training process, it is expected that they will be granted increasing autonomy, independence, and responsibility over time. While the level of Direct Supervision they receive may decrease, it must not disappear entirely.
- 3.5.4 Supervising Engineering/Geoscience
  Professionals should be aware that some
  Subordinates may have limited exposure to
  Direct Supervision. To ensure their
  Subordinates effectively assist them,
  Supervising Engineering/Geoscience
  Professionals must take appropriate steps
  so their Subordinates receive an adequate
  level of instruction and support and
  understand the intent, purpose, and scope
  of Direct Supervision.
- 3.5.5 Indicators of appropriate Direct Supervision of an experienced Subordinate may include the following:
  - Assignment of broader or multi-stepped tasks with reviews at intervals of decreasing frequency, as the Subordinate's experience increases

 Continued availability of the Supervising Engineering/Geoscience Professional should the Subordinate have questions or require further direction

#### 3.5.6 **Example 1**

Mr. Technologist and Ms. PEng have been employees of the same manufacturer for over 15 years. During that time, the two have collaborated on countless manufacturing processes. When working together, Mr. Technologist samples the production lines, identifies the parameters to be modified, and then calculates the changes to be made to maintain the production levels. Ms. PEng then approves the changes to the parameters.

#### 3.5.7 <u>Unacceptable Practice</u>

Ms. PEng feels she is very familiar with Mr. Technologist's work, and as a result has developed the practice of discussing the objectives with Mr. Technologist, then approving his parameters and changes without further review. She assumes that if Mr. Technologist does not come to her with any further issues, there are no problems and she can comfortably take responsibility. Likewise, Ms. PEng assumes that, unless Mr. Technologist indicates to the contrary, the desired production levels are met.

#### 3.5.8 <u>Acceptable Practice</u>

Ms. PEng trusts Mr. Technologist's work and over the years she has given him greater responsibilities. Nonetheless, before approving the changes, Ms. PEng still discusses the objectives with Mr. Technologist, reviews the parameters to be

modified, and checks key points and calculations. Once the changes have been implemented, Ms. PEng verifies that they meet the production objectives. She keeps records of all reviews she performs.

#### 3.5.9 **Example 2**

Mr. Technologist has worked at Mr. PEng's firm for approximately one year in a junior position. When they work on a project together, Mr. Technologist creates most of the design drawings, which Mr. PEng then Seals and signs. Mr. PEng has developed a standard practice that he uses whenever working on a project with Mr. Technologist.

#### 3.5.10 <u>Unacceptable Practice</u>

Mr. PEng discusses the initial project criteria with Mr. Technologist, and then leaves him to complete the work with only one or two points of review or interaction between the initial consultation and final drawings. He assumes that if Mr. Technologist does not come to him with any issues during the development stages, there were no problems. Once Mr. PEng receives the final draft, he does a cursory verification that everything looks acceptable, then Seals and signs the documents.

#### 3.5.11 <u>Acceptable Practice</u>

Mr. PEng and Mr. Technologist discuss the initial project criteria and establish a work plan with specific tasks identified. Mr. PEng reviews the work at regular intervals, and the two discuss any new issues or further engineering decisions that must be made. When Mr. Technologist completes the drawings, Mr. PEng conducts a careful

QUALITY MANAGEMENT GUIDELINES
DIRECT SUPERVISION

SION 1.3

review, including verification of key decisions and calculations, before he Seals and signs them.

#### 3.5.12 **Example 3**

Mr. EngL is the only Engineering/Geoscience Professional at a small engineering firm that designs structural components (light gauge metal connected wood trusses). He affixes his Seal to truss design drawings prepared by technicians at his client's offices.

#### 3.5.13 <u>Unacceptable Practice</u>

Mr. EngL has very little contact with his client's truss design technicians and rarely contacts the technicians to discuss their designs. He does not have access to any software he can use to sufficiently review the truss component design.

#### 3.5.14 <u>Acceptable Practice</u>

Mr. EngL is available and often consulted by his client's technicians throughout the process, should any unforeseen problem arise or should his general advice be needed. Once work is completed, Mr. EngL carries out a detailed review of the documents and completed designs prior to Sealing and signing them. Mr. EngL has access to the proprietary software tools required to perform detailed review when required. Mr. EngL has documented confirmation that his client's technicians have been appropriately trained in the use and application of the software, and that the relevant quality assurance procedures are in place.

### 3.6 HOW IS DIRECT SUPERVISION DEMONSTRATED

- 3.6.1 A documented process is one that has been thought out and reduced to writing in suitable form. The documented process may be captured in a written procedure, process flowchart, checklists, forms, or other documentation developed to suit the nature of the work being Delegated under the Direct Supervision of an Engineering/Geoscience Professional.
- 3.6.2 Professional activities carried out under Direct Supervision must be recorded in writing. This record must be retained to confirm that Direct Supervision has taken place. Appropriate records should provide information of the identity of the project, the professional of record, the Subordinate(s) involved, and the substance of the Supervised activities. The records may include mark-ups of checked work, completed forms or checklists, or emails or other communications documenting comments. Records may be electronic or hard copy.
- 3.6.3 Records must indicate any concerns raised in the course of the Supervised activities, how they were addressed, and what corrective action, if any, was identified, approved, and undertaken.

SION 1 3

### 3.7 WHAT ARE EXAMPLES OF INADEQUATE DIRECT SUPERVISION

# 3.7.1 The following actions or practices may indicate a Supervising Engineering/ Geoscience Professional has not adequately Directly Supervised his or her Subordinates:

- Being regularly and for significant periods of time absent from the principal office premises from which professional services are rendered
- Being regularly and for significant periods of time out of communication with Subordinates under his or her Direct Supervision
- Failing to personally inspect or review the work of Subordinates where necessary and appropriate
- Rendering of a limited, cursory, or perfunctory review of plans or projects in lieu of appropriate detailed review
- Failing to be personally available on a reasonable basis or with adequate advance notice for consultation with Subordinates where circumstances require personal availability

### 3.7.2 Example 1: Supervising Multiple Subordinates

In his firm, Mr. Senior PGeo Supervises numerous Subordinates. Since Subordinates with different levels of experience require different levels of Direct Supervision and attention, the firm has concluded that it would be inappropriate to set a maximum number of Subordinates for each Supervising PGeo.

#### 3.7.3 <u>Unacceptable Practice</u>

As a result of the high number of Subordinates whose work is carried out under his Direct Supervision, Mr. Senior PGeo has great difficulty maintaining an appropriate level of Direct Supervision in each project. As a consequence, issues that require attention are sometimes not addressed.

#### 3.7.4 <u>Acceptable Practice</u>

Mr. Senior PGeo has advised management that he must decline to Directly Supervise the work of any more Subordinates, as he can no longer meet the intent of Direct Supervision as intended in the Act. He has suggested that the firm either engage additional professional geoscientists at an intermediate level, or turn down work that cannot be accommodated with the existing resources. Mr. PGeo is cognizant of how his Supervisory activities compare to the indicators discussed above, and recognizes that being too busy is not an excuse for failure to perform his responsibilities thoroughly. Management has agreed that Mr. Senior PGeo may Delegate the Direct Supervision of some Subordinates to other professional geoscientists who, in turn, are under his Direct Supervision, without necessarily Directly Supervising their Subordinates.

QUALITY MANAGEMENT GUIDELINES
DIRECT SUPERVISION

### 3.7.5 Example 2: Supervising Multidisciplinary Projects

Ms. PEng works in a consulting firm that is organized into client groups, and she Supervises a multidisciplinary group of technologists who service a particular client.

#### 3.7.6 <u>Unacceptable Practice</u>

Ms. PEng takes responsibility for all areas of the projects and provides Direct Supervision to all her Subordinates, irrespective of the area of competence. She Seals and signs all project documents.

#### 3.7.7 <u>Acceptable Practice</u>

Ms. PEng relies on inputs from other Engineering/Geoscience Professionals to Supervise staff in areas in which she does not have professional expertise. In these cases, some staff that report to her within the Organization are Directly Supervised by Engineering/Geoscience Professionals in other departments. She takes care that all documents covering the relevant engineering disciplines are Sealed and signed by the appropriate Engineering/Geoscience Professionals.

### 3.8 RESOURCES FOR MANAGING DIRECT SUPERVISION

3.8.1 Supervising Engineering/Geoscience
Professionals should review the following
guidance in managing the Direct Supervision
of Subordinates, before starting
professional engineering or professional
geoscience work.

- Assess the requirements of the work being considered for Delegation with regard to the knowledge, experience, and capabilities required of the Subordinate who will perform the work, and identify the tools and other resources required to successfully complete the work.
- Assess the Subordinate being considered to perform the work, to determine whether there is a gap between their knowledge, experience, and capabilities and the requirements of the work.
- 3. Arrange to make available the required tools and other resources identified in Item 1 above, or identify the gaps between the required tools and other resources and those that are available. This includes reasonable access to subject matter experts who must be consulted in the course of the work.
- 4. Identify the means by which the gaps identified in Items 2 and 3 above will be mitigated, either directly by the Supervising Engineering/Geoscience Professional or by other individuals who have agreed to assist. Until the gap is remediated, the Engineering/ Geoscience Professional should Delegate the work that is identified as a gap to another person. The Supervising Engineering/Geoscience Professional should also ensure that the EITs or GITs are allowed the opportunity to expand on their existing skills, knowledge, experience, and capabilities. The mitigation process should involve

QUALITY MANAGEMENT GUIDELINES DIRECT SUPERVISION

- allowing the EIT or GIT to perform unfamiliar work, and having that work reviewed in detail between a professional engineer or professional geoscientist and the EIT or the GIT as a learning opportunity.
- Establish scope of work, duties, responsibilities, and authorities of the Subordinates, and establish limitations with respect to acting alone.
- Create a plan for the review of the professional engineering or professional geoscience work output of the Subordinates, including the timing and method.

QUALITY MANAGEMENT GUIDELINES DIRECT SUPERVISION

# 4.0 REFERENCES AND RELATED DOCUMENTS

Engineers and Geoscientists Act [RSBC 1996], Chapter 116.

Engineers and Geoscientists BC. 2017. Quality Management Guidelines: Use of Seal. Version 2.0. Burnaby, BC, Canada: Engineers and Geoscientists BC. [accessed: 2018 Jan 2]. https://www.egbc.ca/Practice-Resources/Quality-Management-Guidelines.

QUALITY MANAGEMENT GUIDELINES
DIRECT SUPERVISION

ION 1.3

NOTES:		