



# GUIDANCE ON DOCUMENT AUTHENTICATION

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**Under Review**

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# TABLE OF CONTENTS

<b>1. Introduction</b> .....	<b>2</b>
<b>2. Document Authentication: The Basics</b> .....	<b>3</b>
2.1 The Purpose of the Seal.....	3
2.2 The Practice of Authentication .....	4
<b>3. Document Authentication: Application</b> .....	<b>4</b>
3.1 The Authentication of Different Types of Documents.....	5
3.2 Electronic Digital Signatures .....	5
<b>4. Document Security and Retention</b> .....	<b>6</b>
4.1 Security .....	6
4.2 Document Revisions .....	6
4.3 Document on Physical Media.....	7
4.4 Document Retention .....	9
4.5 Translations.....	10
<b>APPENDIX A</b> .....	<b>11</b>
DEFINITIONS and ABBREVIATIONS .....	11

UNDER REVIEW

# GUIDANCE ON DOCUMENT AUTHENTICATION

## 1. Introduction

In accordance with the Professional Geoscientists Act (2000), professional geoscientists licensed by the Association of Professional Geoscientists of Ontario (APGO) are legally obligated to authenticate any professional opinion or document they produce. This guidance document provides direction on document authentication, which can also be referred to as either “sealing and signing” or “stamping and signing”.

- It is fundamental to professional practice, that the professional geoscientist:
- authenticate the originals of all documents that the professional geoscientist has produced or contributed to;
- ensure that the contribution of the professional geoscientist(s) to a product or document is clearly indicated and duly acknowledged, especially when projects involve multiple professional disciplines; and
- ensure that the purpose(s) of any geoscience document, which the professional geoscientist has authenticated, are clearly stated therein.

Care should also be taken to preserve the integrity of an authenticated document while using today’s technology-based document preservation and transfer methods.

## 2. Document Authentication: The Basics

### 2.1 The Purpose of the Seal

Once granted licensure, each professional geoscientist is issued a seal with their unique license number. The seal provides evidence that the holder is a member of the APGO, and that they are licensed to practice professional geoscience within Ontario. The use of the seal and the holder's signature with the date on a report or opinion document is the distinctive authentication mark of the professional, and fulfills the requirement under the Act that the professional geoscientist or geoscientists authenticate the originals with their signatures and seals. It constitutes a breach of ethics, if the application of a professional geoscientist's seal and signature is applied to a geoscience document that was not prepared by the professional geoscientist holding the seal or prepared under their direct supervision.

The Act requires that:

***An individual shall not affix the stamp or seal of a member or a certificate holder to a document or record (or a copy of one) unless,***

- (a) the document or record was prepared by or under the supervision of the member or by or under the supervision of a member retained or employed by the certificate holder, as the case may be; and***
- (b) the stamp or seal is affixed with the knowledge and consent of the member.***

Any person entitled to a geoscience document has the right to reject the document, if it has not been authenticated. For the public, the use of the seal and signature attests that the holder is a member of the APGO, and therefore, authorized to practice professional geoscience in Ontario. It is an indication that the opinions and judgements in the authenticated document were provided by a professional held to high standard of knowledge, skill and ethical conduct.

## **2.2 The Practice of Authentication**

Practically, the authentication of a document is achieved by affixing the seal with the seal holder's handwritten signature, along with the clear presentation of the professional geoscientist's name, along with their professional designation permitted to be used (P.Ge.), and an unambiguous date of authentication (for example, "3 October 2009" rather than "03-10-09" or "10-03-2009"). The seal must appear with the signature. The two must be touching but the signature must not render any part of the seal illegible.

The use of the professional geoscientist's seal is reserved for the authentication of geoscience documents only, and any other use of the seal, such as for personal documents or advertising, is prohibited.

Preliminary or draft memorandums, letters, reports, and other types of documents, such as borehole logs, drawings, diagrams, or maps should not be authenticated, and they should be clearly marked PRELIMINARY or DRAFT. Final documents, as well as any other final documents that could be used alone without attachment to any report, must be authenticated before being issued to a client or outside authority. All copies of an authenticated geoscience document must exactly replicate the original. Authentication must be the last professional action taken with regard to the technical content of a geoscience document.

Disciplinary action may be taken by the APGO if it is found that there has been inappropriate application or misuse of a professional geoscientist's seal. It is imperative that documents be sealed, as the non-use of a seal by a professional geoscientist may be subject to disciplinary action as well. A professional geoscientist, who no longer is a member in good standing, will be required to return their seal to the APGO.

## **3. Document Authentication: Application**

This section provides details on the authentication for different types of documents, and the use of digital or electronic signatures.

### 3.1 The Authentication of Different Types of Documents

Documents delivered to the client in the course of practice of the profession should be authenticated by the following means:

- Opinion Letters and Reports: affixing of the seal and signature of the author(s);
- Technology-based documents: indication of the name, professional title and APGO License number of the author(s), along with the date of authentication. Such documents must include an electronic or digital signature, failing which the appropriate cautionary note must be added in a conspicuous fashion;
- Plans: authenticated by a seal and signature of the author(s) in a reference box.

### 3.2 Electronic Digital Signatures

An electronic or digital signature is also a means of authentication, and must be:

- Authentic: It must be possible to identify the signer with no uncertainty.
- Forgery-proof: The signature cannot be easily counterfeited, or applied by someone else.
- Non reusable: The signature cannot be reused, and cannot be transferred to another document.
- Tamper-proof: The signed document is unalterable, so once signed, it can no longer be modified.
- Irrevocable: The signer cannot renounce the document.

Digital signature differs from handwritten or scanned signature in that it is not visual but corresponds to a series of digits. The APGO endorses and recommends the use of public-key cryptography with a digital certificate and a unique code or “hash” computed from the document (to check integrity).

## 4. Document Security and Retention

This section addresses the security and retention of the integrity of authenticated documents.

### 4.1 Security

Professional geoscientists must maintain complete control over the use of their seal, reproductions of their seal and their handwritten signature, and their digital signature, so no one can use them without their explicit consent. To this end, professional geoscientists must keep the access codes to their digital signature strictly confidential and must control access to their computer when these codes are activated. A professional geoscientist who gives someone access to his or her digital signature and/or reproductions of their handwritten signature could be held legally responsible for any use of the digital signature by that person.

In case of doubt or dispute, an original of the document should be kept so that forgery or tampering can be proven. The professional geoscientist must be able to prove that the original has not been modified and that adequate security measures are in place to ensure its preservation, in addition to having adequate documentation that the authentic document was transmitted.

### 4.2 Document Revisions

Modification of a geoscience document is strictly reserved for professional geoscientists, and revisers are professionally responsible for the geoscience product directly or indirectly affected by their modifications. As such, the reviser(s) must authenticate the modified geoscience document, a revision log should be attached to the document that clearly indicates the reviser's name(s) and APGO license number(s), the purpose and nature of the modification(s), and the date of modification(s). It is important that the purpose and scope of any modification be clearly indicated so as to avoid any confusion in the attribution of responsibility, especially if there are several revisers or several sets of modifications of the same document.

### 4.3 Document on Physical Media

Modification of a geoscience document is strictly reserved for professional geoscientists, and revisers are professionally responsible for the geoscience product directly or indirectly affected by their modifications. As such, the reviser(s) must authenticate the modified geoscience document, a revision log should be attached to the document that clearly indicates the reviser's name(s) and APGO license number(s), the purpose and nature of the modification(s), and the date of modification(s). It is important that the purpose and scope of any modification be clearly indicated so as to avoid any confusion in the attribution of responsibility, especially if there are several revisers or several sets of modifications of the same document.

While counterfeiting of a paper document is always possible, it is relatively easy to detect. The professional geoscientist should assess the risk of counterfeiting of the documents he or she originates and take steps to limit the risk. The steps to consider include, where applicable:

- Controlling copies by restricting their number and identifying them;
- Using special paper or reproduction processes.

The professional often has little control over the use of their product. To prevent their product from being used for purposes other than that for which it was produced, the professional geoscientist should ensure that each report, opinion or other final geoscience document he or she has produced always includes a clear statement of the purpose for which the work was done and of any related restrictions, along with a cautionary note against other uses.

#### Technology-based documents

Technology-based documents have the same legal value as paper documents. However, they are easier to alter, copy, separate, destroy, extract or otherwise manipulate. Moreover, in a context where teamwork requires many transmissions of documents, it is always possible that an error may be introduced or that the wrong version of a document may be produced by mistake.

To ensure the integrity and authenticity of technology-based documents, and to minimize the risk of error, professional geoscientists and the organizations who employ

them should set up methods and tools for the creation, distribution and safeguarding of technology-based documents. Such methods should:

1. protect and control the imprints of the seal and the signature;
2. guarantee document integrity (authenticated documents must be secure); and
3. enable verification of the authors' identity.

A technology-based geoscience document may be transmitted if it includes one or more authenticating marks (imprint of seal or of signature, or both), and bears the digital signature of the professional geoscientist. If reproduction of the professional geoscientist's seal(s) and handwritten signature imprint(s) are used in accordance with Section 2.2, then the technology-based document should be secure.

A technology-based document that has not been authenticated must contain a cautionary note to that effect. The APGO suggests the following wording: "The original of this electronic document was produced and authenticated by (author's name) on (date of authentication) and may be consulted at (location). This copy cannot be considered an authenticated document and must not be used for such purposes."

A technology-based geoscience document that is not authenticated may be sent with no digital signature or special protection. However, it should always contain the name of the author and a cautionary note specifying that it is being sent solely for purposes of information or coordination.

A digital signature is the best form of security for an electronic document.

Before distributing an electronic document, the professional geoscientist should evaluate the risks in order to choose the appropriate precautions. The following factors should be considered:

- Is the recipient reliable?
- How will the recipient use the document?
- Does the recipient have a system for ensuring document integrity and confidentiality?
- Is there a risk of alterations to the document?
- Is there a risk of unauthorized copying or use of the seal and signature?

- Might the recipient use the document for purposes other than those for which the professional geoscientist accepts professional responsibility?

If document integrity or security cannot be ensured, the professional geoscientist should not send the authenticated document electronically. Instead, he or she may send an unauthenticated document with the appropriate cautionary note as to use of the document.

#### **4.4 Document Retention**

An authenticated geoscience document must be kept in a way that will preserve its integrity. Technology-based geoscience documents, whether authenticated or not, must be stored in a way that will ensure their integrity. The integrity of the document must be maintained, whether it is authenticated, consulted, examined, verified, split, copied, transferred, transmitted, conserved, archived, destroyed, recovered, reconstituted or manipulated in any way.

The integrity of authenticated geoscience documents is vital to security, both legal and professional. When documents are on paper or film, their integrity is not called into question. Indeed, it would be difficult to alter the original or copies of such documents without leaving a trace, and errors in their handling are unlikely to alter their content and hence their integrity.

The documents in the professional geoscientist's file, whether authenticated or not, should be archived by the professional geoscientist or by the professional geoscientist's employer subject to the requirements stipulated under legislation and/or industry standards applicable to such documents.

A technology-based geoscience document must not contain a professional geoscientist's seal or signature imprint unless the preservation of integrity can be guaranteed in the document's storage.

If access to a saved document requires the use of certain hardware, tools or systems, these must be conserved and kept in good operating condition for the same duration as that prescribed for safeguarding of the document.

The original of a geoscience document must be easy to find. In the absence of the system designed for this purpose, the copies must contain a note indicating the location of the original.

#### **4.5 Translations**

Professional geoscientists sometimes have to deliver a geoscience document in a language other than their usual working language. In this case, the professional geoscientist should specify the language that takes precedence in the case of discrepancy between information provided in different languages. Nonetheless, where the situation (client or legislation) requires that all the texts have equal status, the professional geoscientist must ensure that the meaning in all texts is the same.

A professional geoscientist may authenticate documents in more than one language if he or she is fluent in those languages. When several professional geoscientists collaborate on a project, each may authenticate the document in the language in which he or she is fluent. Alternatively, it is possible to use the services of a professional translator who is familiar with the subject and who can certify that the translated text is faithful to the original. Failing a professional or certified translator, the translation must be certified by a notary. The professional geoscientist may authenticate the original and any translation thus certified. If a client provides a translation of a document produced by the professional geoscientist, the professional geoscientist must ask the client to provide certification that the translation is faithful to the original document.

## APPENDIX A

### DEFINITIONS and ABBREVIATIONS

The following definitions and abbreviations have been used within this guidance document:

**Author:** The professional geoscientist(s) who conceived or produced a geoscience product, or participated therein.

**Digital signature:** The establishment of a link, by any method, between a technology-based document and a person, thus identifying the signer and ensuring the integrity, confidentiality and nonrepudiation of the document.

**Document:** Information inscribed on a medium constitutes a document. The information is delimited and structured, according to the medium used, by tangible or logical features and is intelligible in the form of words, sounds or images. The information may be rendered using any type of writing, including a system of symbols that may be transcribed into words, sounds or images or another system of symbols.

**Geoscience document:** A document expressing the result of geoscience work done by a professional geoscientist. A geoscience document must be considered a “document” within the meaning of the Act.

**Geoscience product:** Anything produced, whether tangible or intangible, as a result of work done by one or more professional geoscientists, including the preparation of geoscience documents.

**Handwritten signature:** The personal mark (usually the name written by hand) that a person habitually makes on a document to acknowledge his or her consent and responsibility with regard to the document, or to authenticate it.

**Imprint:** A facsimile (of a seal, a signature, etc.) appearing on a document, regardless of the medium.

**Integrity of a document:** “The integrity of a document is ensured if it is possible to verify that the information it contains has not been altered and has been maintained in its entirety, and that the medium used provides stability and the required perennity to the information.”

**Opinion:** An opinion expressed by a person or organization whom has been consulted.

**Original:** The document that was produced directly by the author and that is the first source of subsequent copies or reproductions. In the case of a technology-based document, the integrity of the original must be ensured and it must be possible to trace the original back to a person, whether or not it is ever transmitted.

**Plan:** A geoscience document containing information in a graphical form, that is, through a combination of lines and characters (letters, numbers, signs and symbols). In cartography, the term “plan” refers to a map representing an area small enough for its curvature to be omitted and the scale to be considered constant.

**Seal:** The professional geoscientist’s official stamp. It contains the professional geoscientist’s name, license type (i.e., “Practicing Member), license number, the words “Professional Geoscientist, Ontario”.

**Technology-based document:** A document existing on a medium that uses information technologies, whether electronic, magnetic, optical, wireless or other, or that uses a combination of technologies, such as a computer file.

**Verification:** The act of verifying or ensuring the exactitude of something by comparing it against some form of proof.