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Best Practices for Qualified Persons

On-site and Excess Soil Management
O. Reg. 406/19

January 2021

Context and Background

Ontario Regulation 406/19:On-Site and Excess Soil Management was announced in December 2019 with amendments in July and December 2020.

The objectives are:

- Reduce soil management costs
  - Reduce costs of transportation
  - Reduce costs of landfilling excess soil
- Protect human health
- Protect the environment
  - Eliminate illegal dumping of excess soils
  - Reduce amount of clean soil going to landfills
  - Reduce greenhouse gas emissions

Excess Soils Regulatory Documents

O. Reg. 406/19

- Required by law
- Exempts low-risk soil management activities from waste Environmental Compliance Approvals (ECAs)
- Implemented in phases from Jan. 1, 2021 to Jan. 1, 2025, some grandfathering provisions

Rules for Soil Management and Excess Soil Quality Standards

- Outlines further details for implementation of assessment of past uses, sampling and analysis plans, excess soil characterization reports, soil storage and processing, tracking, soil quality standards and reuse rules
- Required by law:

Excess Soils Supporting Documents

Fact Sheets

- Still in development by the Ministry (coming soon)

Best Practices

- Developed by industry stakeholders, project led by ONEIA
- Recommended, not required
- Outlines regulatory requirements
- Outlines and clarifies how stakeholders can best implement the requirements
- Not universally applicable, stakeholders are encouraged to review and integrate where useful

Additional Best Practices documents by ONEIA cover Hauling, Temporary Sites and OSPE is developing BPs for Pits and Quarries reuse

Municipal Bylaw Tool being updated by Canadian Urban Institute

What soil does 406/19 apply to?

"Soil" means unconsolidated naturally occurring mineral particles and other naturally occurring materials resulting from the natural breakdown of rock or organic matter by physical, chemical or biological processes that are smaller than 2 millimetres in size or that pass the US #10 sieve.

Excess soil is designated as waste (and regulated under O. Reg. 347) unless it meets ALL the conditions outlined below.

Excavated Soil, being taken offsite

Excess soil can be either dry or liquid

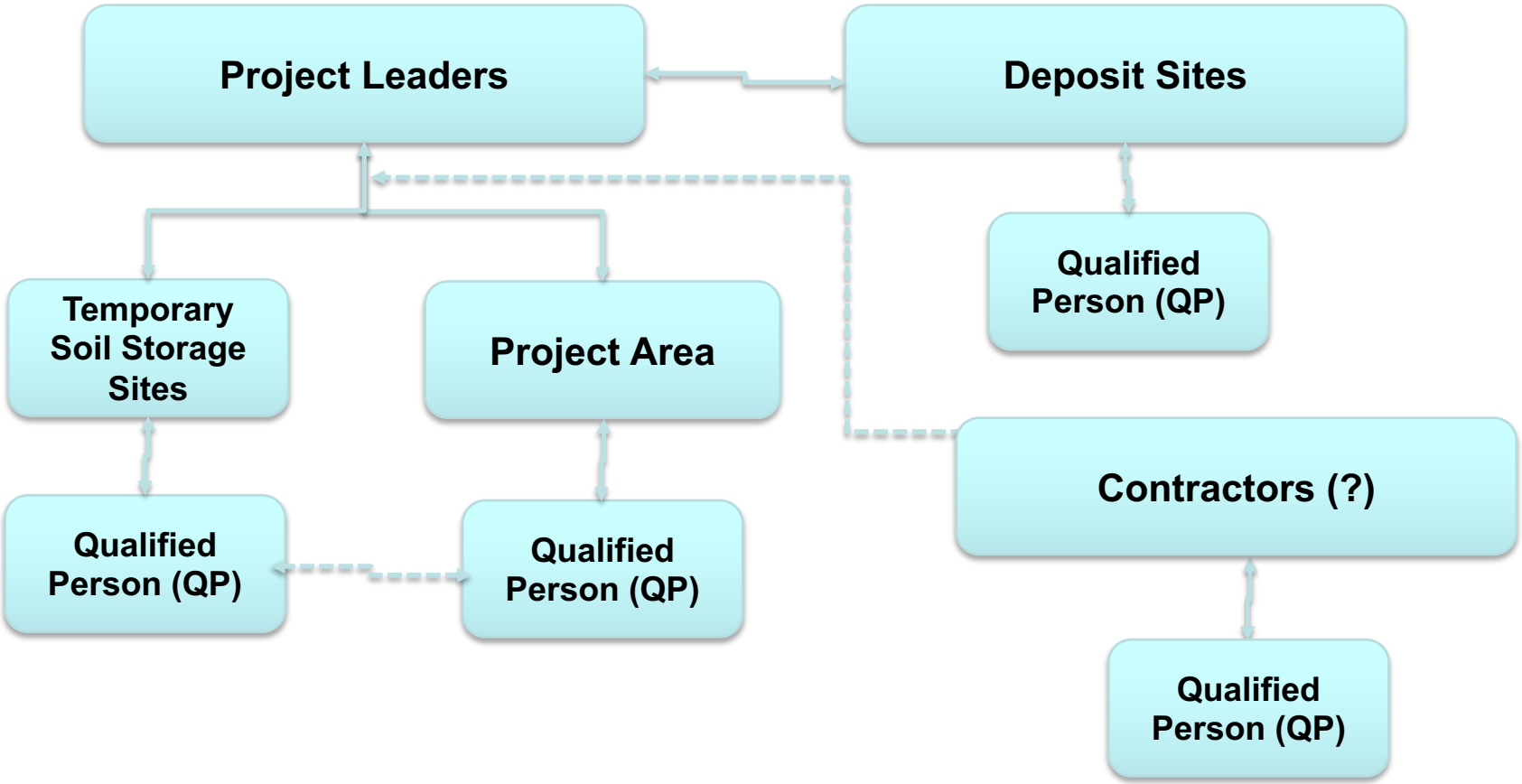
Meets all the following:

- Is being beneficially reused and not stockpiled
- Soil is dry and the quality and quantity align with that necessary for the **beneficial reuse**
  - If the soil is not dry, a local instrument must permit the deposit of liquid soil
- The reuse site has consented in writing to take the soil (not illegally dumped)
- Soil staying in the Project Area is not waste if being reused

Excess soil that does not need a waste ECA, but is subject to 406/19

Stakeholders Overview

The parties listed below all have a role to play in meeting regulatory requirements and implementing best practices for temporary sites under O. Reg. 406/19.



Who is a Qualified Person?

Regulation points to O. Reg. 153/04 Records of Site Condition. A QP could be…

- A professional engineer with proper expertise
- A professional geoscientist with proper expertise

A QPRA (risk assessor) is further defined, they are required to prove a variety of qualifications.

A QP is someone who can exercise professional judgment based on his or her education and professional experience in order to advise on appropriate reuse options for the excavated soil or excess soil, and make these decisions based on appropriate analysis and characterization of the soil.

Ethics & Public Trust

It is not only a best practice, but also **a matter of ethics and professional conduct** for Professional Engineers and Professional Geoscientists to only work within areas of appropriate knowledge, skills, and experience. Management of excess soil is no different. QPs should only provide excess soil management services if they have the appropriate education and experience to practice.

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QPs have a responsibility to protect the health and safety of the public in their practice.

Best Practices for QPs at the Project Area

Assessment of

If documents are more than 18 months old, or activities have taken place since the report was generated, the report should be thoroughly reviewed and updated as needed. Documents should be considered “living documents” and updated as needed through the excess soil management cycle.

Best Practices

- QPs should fully understand the reporting requirements
- QPs should clearly communicate the requirements to the Project Leader and outline any limitations or uncertainties with any findings.

Assessment of Past Uses

REGULATION

If the site falls into the Registry reporting requirement [refer to Schedule 2 of the regulation for the non-reporting circumstances], an Assessment of Past Uses report is required to be prepared by a QP unless the project is excavation of soil at a stormwater management pond or if an RSC-compliant Phase One Environmental Site Assessment has already been prepared.

If a Phase One ESA document **is older than 18 months** old, it is a regulatory requirement as referenced in the Soil Rules in reference to O. Reg. 153/04 that the document should be reviewed in detail and updated to reflect current conditions.

Best Practices Assessment of Past Uses

- A RSC-compliant Phase One ESA meets the requirements of the Assessment of Past Uses, but if it is old it should be reviewed and updated as needed, ensuring that if any activities took place since it was completed did not create new potentially contaminating activities (PCAs) or areas of potential environmental concern (APECs).

Sampling and Analysis Plan

REGULATION

If the site falls into the Registry reporting requirement, a Sampling and Analysis Plan is required to be prepared by a QP for sites where:

- Potentially contaminating activities have been identified,
- Any part of the Project Area is or was previously an enhanced investigation site (i.e. gas station, dry cleaning plant or industrial use property, as defined in O. Reg. 153/04), or
- Excess soil is removed from a stormwater management pond.

Sampling and Analysis Plan

REGULATION

A Sampling and Analysis Plan is not required for soil that is destined for a waste management or processing facility that has an ECA.

When a Sampling and Analysis Plan is required, the Project Leader shall ensure that a QP implements or supervises the implementation of the plan.

Soil Characterization Report

REGULATION

Once the Sampling and Analyses is complete and prior to filing the notice on the Registry, a soil characterization report shall be prepared. The report is to contain:

- descriptions of which parts of the project area were sampled and analyzed
- descriptions of which areas of soil will be reused on-site and sent for processing and disposal, or reused at a beneficial reuse site
- identification of what types of final placement sites can be used based on the excess soil standards (i.e., Table 2.1 sites, Table 3.1 sites etc.).

Best Practices for Minimum Sampling and Analysis

In some circumstances minimum sampling requirements may not fully characterize the site, such as where:

- Geological changes of depth or where segregation of soil is needed
- The final deposit or other reuse requires further analysis

Additional Considerations for Sampling

It is advised to collect more than the minimum as the following situations may also occur:

- Have sufficient sample volumes for further leachate analyses
- if the project changes at a later date and the originally estimated soil volumes increases and additional analyses results would be needed
- geotechnical properties of the soil and any changes that may be observed during assessment and/or excavation activities, the QP should consider sampling and analyzing differing soil types and horizons for the appropriate number of samples

Additional Considerations for Sampling

- When sampling and analyses may not be required, a Best Practice for sampling and analyses would be to collect a representative number of samples for the minimum analyses recommended to evaluate the risk of an adverse impact of placing soil at a receiving site.

- Where the QP is relying on information prepared by others than cannot be validated or reliance has not been extended, updated sampling and analyses may (and likely will) need to be completed

Excess Soil Destination Assessment

REGULATION

- For sites to be listed on the Registry, the QP is to prepare a review of potential reuse and disposal sites that the excess soil placement, based on the quality and quantity of excess soil.

- Multiple sites may be used depending on the quantities and quality of the soil to be relocated. The Report is to summarize the estimated volumes to be deposited at each site and type of site.

- Again ... a “living” document and should be updated as new or alternate sites are identified and/or intended

Best Practices for the Excess Soil Destination Assessment

It the responsibility of the Project Leader to select deposit sites; however, the QP may be requested to support the selection of appropriate reuse sites.

- Reduce GHG emissions by locating closest acceptable sites.
- Consultation/collaborations between QPs, contractors and Project Leaders should take place to identify deposit sites
- A QP may be asked to complete a cost-benefit analysis for different sites (i.e. tipping rates vs. transport costs and GHGs reductions).

Exceptions for document requirements

The planning documents **are not required** for project areas that are fully on Agricultural properties, or for Parkland, Residential or Institutional use properties provided the excess soil will not be relocated to an Agricultural use property.

These exceptions do not apply where contaminants are known or suspected to exist on any portion of the Project Area (should be identified in APU/Phase One ESA)

Best Practices for Exceptions

Where there is an exception the QP could prepare a brief document with justification of property uses and confirmation of no known contaminants.

Despite exceptions for historical use, urban parks and agricultural spaces may have contaminants. The Assessment of Past Uses should be completed at a minimum.

Careful! – we all have examples of unknowns and finding impacts that could not be predicted

Updating Documents

REGULATION

When additional information is uncovered that may alter the findings of the reports the affected documents must be appropriately updated within 30 days and provided to the Project Leader. The Registry may also need to be updated.

BEST PRACTICE

Documents should be considered ‘living documents’ during the project. To assist with version control, the documents should include a version number and date.

Additional Best Practices

Even when not required a Project Leader should consider retaining a QP.

QPs should consider the following best practices at the Project Area:

- Summarize information to go to deposit sites.
- Characterize soils as much as practical.
- Where not required to file in the Registry the QP should generate documents in the spirit of the standards as appropriate.
- Where the Project Leader requests the documents produced do not meet the minimum requirements this request shall be documented in the project agreement and described in the documents with limitations summarized.

Observation Procedures

REGULATION

Observation procedures during the excess soil excavation shall be developed and followed along with a procedure for occasions when contamination is observed or suspected. If the Project Area is required to be listed on the Excess Soil Registry, then a QP shall be consulted for advice on managing the suspected contaminated soils and, where necessary, project documentation shall be appropriately updated.

BEST PRACTICE

Where suspected contamination is encountered, it is a best practice that the QP be contacted for advice and recommendations for managing the suspected contaminated excess soil. Confirmatory sampling and analyses to delineate impacts should be completed.

Leachate Testing

REGULATION

Leachate testing is required to be completed:

- On a specified number of samples that is dictated by the volume of excess soil to be generated
- On the samples with the highest bulk concentrations of the contaminant of concern.
- Synthetic Precipitation Leaching Procedure (SPLP) or Toxicity Characterization Leaching Procedure (TCLP) may be performed to satisfy the leachate testing requirement; however, the pH of the leaching acids is slightly different. Further, it is also noted that some contaminants of concern may react differently, depending upon which method is chosen for the Leachate Testing.

The modified SPLP (mSPLP E9003) will be the required testing procedure for excess soils as of January 1, 2022. Further, the requirement for leachate testing on excess soils that meet background standards (Table 1) has been clarified to be unnecessary.

Best Practices for Leachate Testing

Not all contaminants of concerns have Leachate Screening Level Standards

- Only complete leachate testing on contaminants with screening level values
- Don't test Table 1, unless PH is outside normal range

Communication with the Lab

- Ensure more than adequate soil volumes are supplied
- Ensure the Lab knows it is an excess soil project

Communication with the Project Leader

- Ensure they are aware of the scope and costs for leachate testing

Use the mSLCP method, reserve the TCLP method for soil to be disposed of as waste only

Reuse Sites Not Governed by an Instrument

REGULATION

When site-specific standards are to be used for governing acceptability of excess soils to be accepted at a reuse site, not governed by a site-specific instrument, a QP is to be retained by the operator of reuse sites that are not governed by a site-specific instrument.

Best Practices for reuse site QPs are similar for those at Project Area.

BRAT – Beneficial Reuse Assessment Tool

Risk-based model for the reuse site to assess whether actual site conditions allow for soils with concentrations that are higher than the generic Standards.

REGULATION

The QP shall:

- Develop site-specific standards using the BRAT model
- Apply the site-specific soil quality standard as outlined in the Soil Rules.
- When the BRAT model is complete, the QP is to complete the declaration of the accuracy of the input information and ensure the reuse site operator is provided a copy of the declaration and BRAT output worksheet (filed with the MECP).

A full risk assessment is an acceptable alternative to the BRAT.

Qualified Persons (QPs) at Class 2 Soil Management Sites

Temporary sites should be operated in consultation with a Qualified Person.

They can assist in ensuring Temporary Sites are constructed, operated and maintained in a manner that ensures the health and safety of all persons and prevents adverse effects within the meaning of the EPA or impairment of water quality within the meaning of the Ontario Water Resources Act.

QP is likely the same QP for the Project Area. Similar Best Practices at these sites. Understand the storage rules, set-backs, pile size standards, segregation, rejection, security etc.

Qualified Persons (QPs) for Public and Large Infrastructure Sites

There are no specific regulatory requirements for QPs with respect to the Public and Large Infrastructure Sites.

There are some exemptions for public and large infrastructure sites that the QP should be aware.

Best Practices for Public and Large Infrastructure Sites

- Sites should still complete documents and reports as they may be required by deposit sites not associated with the public infrastructure.

- Possible higher potential for Class 2 sites (Temporary Sites), and use of these sites for characterization/determinations where not possible ahead of project.

- Due to size and scale, projects should work to limit GHG emissions as much as possible as a core aspect of project design.

Hauling Details

There are no regulatory requirements for QPs specifically around hauling.

There Project Leader may request the QP be the contact listed to answer questions regarding soil quality on the Hauling Record.

QP Declarations

Regulatory Requirements for QP Declarations (Soil Rules Section B)

6. **Qualified Person** Declaration

1) If a ***qualified person*** is required to prepare documents under the regulation including the assessment of past uses, sampling and analysis plan, soil characterization report and excess soil destination assessment report a declaration by the ***qualified person*** is required, stating the following:

1. The project leader, or operator of the project area has provided the ***qualified person*** with all necessary information and access to the project area, and authorized the qualified person to make any inquiries of the project leader's and operator's employees and agents, for the purposes of assisting the ***qualified person*** in preparing the documents.
2. The documents have been prepared in accordance with the Regulation and the Soil Rules Document by or under the supervision of a ***qualified person***.
3. To the best of the ***qualified persons'*** knowledge the documents are complete and accurate and meet the requirements of the regulation and the Soil Rules.
4. The work required to complete the assessment of past uses, the sampling and analysis plan, the soil characterization report, and the excess soil destination assessment report, has been conducted in accordance with the regulation and by or under the supervision of a ***qualified person***, as required by the regulation.

Best Practices for QP Declaration

- All documents prepared should be considered as equivalent to making a declaration of the authenticity of all information, even if not presented as a declaration
- All documentation should be signed with the appropriate QPs professional qualifications clearly stated
- Background on the rationale for preparation of the document should be clearly stated, or reference made to a previously prepared document which summarizes the background information
- All documents should clearly outline to the client whether or not they meet the standards and limitations of the documents
- Ensure insurance covers QPs for making declarations on excess soil management activities

Liquid Soils

REGULATION

It is noted that liquids soils can be:

- Processed at the Project Area through passive or mechanical dewatering processes
- Processed at a local waste transfer facility
- Collected and hauled for delivery to a waste management facility that has been issued an ECA for liquid soils management or a reuse site with a site-specific instrument governing the deposit and management of the liquid soil.

BEST PRACTICE

Decisions about liquid soils are made by the Project Leader, but QP may assist in determining if the soil is liquid soil via slump test.

The QP should be aware of what activities can be performed on the liquid soil and where.

Additives and Polymers ... For liquid soils

When natural or synthetic polymers are to be used for solidification or dewatering activities, the excess soil is classified as waste, unless:

- A QP is commissioned by the Project Leader to develop written procedures for the safe use of the polymer within the Project Area and includes the information provided by the manufacturer/distributor of the polymer
- The QPs written procedures for the use of the approved polymer(s) are provided to the Project Leader or representative
- If the dewatered soil will be transported to a reuse site, the QP shall prepare a document that identifies the substance added to the soil and the volume of liquid soil that was processed and statements confirming that the liquid soil processed with the polymers will not cause adverse effects if stored or finally placed.

The reuse site owner/operator shall be provided a copy of the documents and shall follow the instructions in the documents.

The use of the polymer in dewatering liquid soils must be completed in accordance with applicable rules in the Soil Rules.

Best Practices for Additives and Polymers

The QP should complete detailed review of the polymer constituents and request case-studies and long-term monitoring data from the manufacturer/distributor. All review findings should be documented along with the QP opinion.

When the mixed soil is being arranged to be moved to a reuse site, the QP documentation should be provided to the reuse site owner/operator. Unless specifically requested by the Project Leader, the exchange of the information to the reuse site should be facilitated by the Project Leader.

Using Additives and Polymers

REGULATION

When mixing materials with the liquid soil for the purposes of dewatering at either the Project Area or a local waste transfer facility:

- Mixing can occur provided the mixing is not for the purposes of contaminant mitigation or exposure reduction;
- The mixing material cannot be waste;
- If the mixing material is a manufactured product, the volume of mixing materials should not exceed the manufacturers recommended dose;
- For mixing with natural non-polymer products (such as non-pressure-treated woodchips/sawdust) or mineral based materials (such as bentonite), sampling and analyses per the requirements in the registry filing can occur after mixing provided that the QP is of the opinion that the mixing does not change the outcome of the excess soil characterization versus the applicable quality standards.

Using Additives and Polymers

When mixing materials with the liquid soil for the purposes of dewatering at either the Project Area or a local waste transfer facility:

- For mixing with natural or synthetic polymer products, a QP must be retained. The QP shall assess the appropriateness of the material, and develop procedures for the use. Then, the sampling and analyses required in the registry filing can occur before or after mixing depending upon the opinion of the QP on whether the additive will change the outcome of the excess soil characterization versus the applicable quality standards, and
- Unless the mixed excess soil is being directly transported to a waste disposal site permitted to accept the excess soil mixture, the QP shall be of the opinion that the polymer and any breakdown products will not result in adverse impacts to human health or the environment.

Best Practices for Using Additives and Polymers

- The QP should understand and document the methods and additives used in dewatering the liquid soils and communicate them to the Project Leader and reuse site.

- When natural or synthetic polymers are used in the dewatering, case studies and longer-term monitoring data should be requested from the manufacturer/distributor.

- In all situations, the future use of the excess soil and any limitations that may pose should be ascertained where possible. As an example, wood chips may not be suitable for excess soil that will be used at a tree nursery due to tree disease etc.

Local Background Concentrations

REGULATION

With respect to Local Background Concentrations, an excess soil quality standard is deemed to be met **when the excess soil does not exceed the naturally occurring concentration range typically found in the area** of the reuse sites, and documented evidence of the naturally occurring parameters is provided to and retained by the reuse site owner/operator.

The QP shall also retain the documented evidence on file for a minimum period of seven years.

Best Practices for Local Background Concentrations

For the QP to provide the documented evidence of naturally occurring parameters the QP should:

- Refer to Ontario Typical Ranges and published documents on local background concentrations
- Discuss with Local MECP office or municipal offices
- Demonstrate the background concentrations exist outside the project area and are not associated with an area of potential environmental concern or potentially contaminating activity

Materials with pH Outside of the Acceptable Range

REGULATION (Rules Doc.)

For reuse sites, if the pH is outside the acceptable ranges of 5.0 to 9.0 for surface soils (<1.5 metres) or 5.0 to 11.0 for subsurface soils (>1.5 metres), the excess soil must meet Table 1 generic Quality Standards and any required leachate analyses must meet the Table 1 leachate screening levels

If the soil is to be deposited at a reuse site, the owner/operator must have a QP complete an assessment of the potential impacts of the placement of the soil and confirm that it will not cause an adverse effect.

Best Practices for Materials with pH Outside of the Acceptable Range

Project Area QP

- Provide documentation that identifies the cause of the out-of-range pH and have fully delineated, and mitigated the out-of-range pH, if possible
- Provide a summary of the soil results that demonstrates that all other parameters in the excess soil meet the Table 1 quality standards and the Table 1 leachate screening levels

Reuse Site QP

- Should understand the cause for the pH being outside the acceptable range and fully review the documents
- Where applicable, the reuse site QP should confirm that placement will not cause an adverse effect and make suggestions regarding how the soil may be managed
- Record the placement of the soil for future reference

Best Practices for Data Reliance

It should be understood that information, data and documents generated by QPs will be used by others, whether or not such reliance has been provided for. However, an expectation for extending reliance should be expected and well documented in any and all communications surrounding the movement of excess soils.

When a QP is assuming data prepared by others, considerations into the accuracy and representativeness of the data and information shall be assessed prior to relying on the data.

There are no regulatory requirements on data reliance.

Record Keeping

Quiz Time!

How long do QPs need to keep their soil management documents and records?

a. I don't have to keep it, it's the responsibility of the Project Leader
b. Two Years
c. Seven years
d. Forever!

SEVEN YEARS

From the date of delivery, **TWO YEARS** for hauling records

Best Practices for Record Keeping

The best practice would be to ensure that documents and records can be available by the QP firm for longer than seven years.

Electronic versions of all documents and records shall be organized and uniquely named for future search and location by other assignees of the QP's firm that generated the documents and records.

The firm employing the QP should be able to easily source, identify and supply the information generated for a minimum of seven years.

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On-Demand Training

www.oneia.ca/excess-soil

Thanks to our Steering Committee

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- Laura Blease, *Ministry of the Environment, Conservation and Parks*

Best Practices Documents & Training

Haulers Best Practices

Temporary Sites (Class 2 Soil Management Sites) Best Practices

Access the best practice documents, on-demand training and info session recordings.

www.oneia.ca/excess-soil

ONEIA is here to help

- Our brownfields, soils and other subcommittees regularly meet to discuss emerging issues and broader industry concerns
- We help companies work together to address issues of common concern
- Feel free to reach out to the office to connect with a committee, sign up for our e-newsletter, or follow our social media channels

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