

DRAFT

Silviculture Information Submission Guidebook

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**BRITISH
COLUMBIA**

Ministry of Forests

Silviculture Information Submission Guidebook

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Executive Summary

This guidebook helps to provide users direction in submitting silviculture information submitted to government to meet the requirements of *Forest Planning and Practices Regulation* (FRPA) and the *Timber Harvesting and Silviculture Practices Regulation* (FPC).

This guide provides general information on the electronic submission framework (ESF), Reporting Silviculture Updates and Landstatus Tracking System (RESULTS). Secondly, and more importantly it provides more specific information on the data fields, mapping standards, rules, and related legislation for making submissions to RESULTS through the ESF.

This document is a consolidation of the previous Industry Guide to the Preparation and Submission of RESULTS Reports through the Electronic Submissions Framework (ver 1.4), the Guide to Completing the FS 708 Forms (May 2003), the British Columbia Mapping Standards For Use In RESULTS Submissions, and the Precision Standards for Forest Inventory or Form C Data and Map Submissions to the Ministry of Forests. It is intended to be the single source for the process of creation and submission of data to RESULTS.

Explanation of technical materials, standards and processes are presented in a straightforward manner. Examples and tips, for creating, managing, and submitting Silviculture information are included where possible.

Document Change Control

Version	Date	Author	Description
1.1	Dec. 18, 2003	Forsite	Added Appendixes on Multi-Tenure and Bark Beetle Management and minor edits.
1.2	Mar. 9, 2004	Forsite	Minor edits to Appendix A.
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2.1	April 25, 2005	Forsite	Significant reorganization of content, more detailed inclusion of mapping standards for submissions, more detailed inclusion of business rules, incorporation of steering committee comments, renaming to reflect purpose of document
2.1.1	May 3, 2005	Forsite	Updated acknowledgments page to include those involved with the mapping standards and precision standards; added comment in section 1.1 about this guidebook specifying the manner and form as referenced in legislation; replaced code tables list with URL
2.2	June 10, 2005	Forsite	Various text and grammar edits, updated to include RESULTS 2.0 screen shots, updated attributes where applicable, added hyperlinks, addressed comments from various MoFR reviewers
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1 Introduction

1.1 Intent of the Guide

The *Forest Planning and Practices Regulation* and the *Timber Harvesting and Silviculture Practices Regulation* (see [legislation](#)) provide details on the reporting requirements of forest tenure holders. This guide:

- provides direction on how to complete silviculture obligation reporting;
- provides the user with the necessary information for making electronic RESULTS submissions for silviculture obligation reporting. It is not intended as a comprehensive instruction manual that would enable the user to create an electronic submission (XML/GML) document, but rather the intent is to provide information on the submission requirements, processes, issues, and electronic submission options;
- is a non-technical document that describes the linkages between forest industry business processes governed by legislation and policy, and the supporting technology and processes for electronic submissions to the MoFR; and
- will familiarize the user with the technology required to make electronic submissions, explain the data requirements for silviculture and land status submissions, and detail the process for making common types of submissions.

1.2 Intended Audience

MoFR, BC Timber Sales (BCTS), and forest licensee managers, foresters and technical staff (silviculture and support staff), as well as contractors and consultants who are responsible for producing and managing silviculture submissions on behalf of licensees are the intended audience. Mapping and information management support staff will find this guide useful for understanding the mapping and information management related issues.

This guide is intended to provide direction for those who use varying levels of information technology to support their forest management. It will provide insight to approaches for supporting electronic submissions for all types and complexities of forest data management systems, even where very limited data management technology is currently being used.

1.3 Relation to Other Documents and Training Material for RESULTS

1.3.1 Documents

This document was created by combining/reorganizing and updating several existing documents/guides with the intent of providing a single source for information related to RESULTS submissions. The following guides were consolidated and will no longer be updated:

- ***Industry Guide to the Preparation and Submission of RESULTS Reports through the Electronic Submission Framework ver 1.4.*** This was the original industry guide for RESULTS submissions.

- **Guide to Completing FS 708 Forms.** This document describes the details of entering data on the FS 708 Forms (Forms A, B, and C), including complete lists of valid codes. These forms are not used for electronic submissions, so relevant content has been incorporated into the new industry guide.
- **British Columbia Mapping Standards for use in RESULTS Submissions ver 1.1.** This document explains the business rules around submitting digital spatial silviculture data.
- **Precision Standards for Forest Inventory or Form C Data and Map Submissions to the Ministry of Forests.** This guide details the specific regulations and requirements for submissions related to forest inventory. It has never been released to licensees.

The **Electronic Submission Framework (ESF) RESULTS Submission Guide** is a related technical guide that describes the structure and content of RESULTS submission documents. It is available on the ESF website: http://www.for.gov.bc.ca/his/esf/index_reesub.htm. This guide is designed to assist submission authors in producing valid submission documents and as a guide for developers that will be creating automated tools for this purpose. This guide will be maintained and it will continue to be updated in some form.

1.3.2 Training

In addition to this document and the **Electronic Submission Framework (ESF) RESULTS Submission Guide** those seeking more information and training for RESULTS can go to the RESULTS website (<http://www.for.gov.bc.ca/his/results>) where they will find:

- Links to current training and/or training material;
- Questions and Answers;
- An **On-line Tutorial** available for learning to use RESULTS. The tutorial does not cover how to create a submission document, which is the focus of this guide, but it does show what happens with the data once it has been transferred to the RESULTS system. The tutorial is available on the Information Management Group website: <http://www.for.gov.bc.ca/his/results/tutorial/>; and
- Other helpful information.

1.4 How the guide is organized

This guide is organized into 6 main sections. [Section 1](#) provides an introduction; [Section 2](#) provides a general overview of electronic submissions; [Section 3](#) provides information specific to making silviculture and land status reporting submissions to RESULTS; [Section 4](#) provides information specific to formatting spatial objects in preparation for submission; [Section 5](#) details mapping standards that must be adhered to; and [Section 6](#) details the precision standards which licensees will be measured against. Where appropriate, examples of submissions made in common situations are provided. Appendices provide more technical details on [tools](#) available to help prepare submissions, as well as related [legislation](#), and [codes](#).

1.5 What to do next

The submission of documents to RESULTS through the Electronic Submission Framework provides an opportunity to streamline reporting information management. Critical to the success of any e-submission is an understanding of the general process of submitting information electronically. It is recommended that any individual or company determines and develops an approach to managing and preparing electronic submissions which could include the use of service providers or the implementation of a system to directly extract submissions from an existing information management system. If you are unsure how to prepare, ask for help. Many groups and service providers are gearing up to support e-submissions, including various district working groups, District ESF contacts (see [RESULTS](#) website), Business Application Support Services, and numerous service providers. [Appendix A](#) includes a list of currently available tools and option for preparing e-submissions, and other options will probably be available soon.

2 Introduction to Electronic Submissions

Electronic submissions of silviculture information to the MoFR are part of a province-wide initiative put forth by the British Columbia Government to improve service delivery through the use of electronic business mediums. The MoFR has identified four key areas within their Electronic Forest Management (e-FM) initiative: electronic services for submissions of regulated information to the ministry (e-Submissions), access to ministry information holdings (e-Access), electronic record management (e-Records), and delivering training and learning opportunities (e-Learning) (see Figure 2-1). The aim of these initiatives is to streamline business with government and to decrease costs to industry as well as government.

The Electronic Submission Framework (ESF), a component of e-Submissions, is accessed by clients of the MoFR in order to make various types of data submissions including: silviculture (RESULTS), forest tenure (FTA) and as-built roads (ABR) submissions. In the near future, this will be the standard for submitting all information to the MoFR, with the goal that each piece of information will only be submitted

once, even though it may be used for a number of purposes, or by a number of agencies. For example silviculture information submitted through the ESF is shared between numerous ministries including, but not limited to, the MoFR and the Ministry of Agriculture and Lands (MAL).

General information on e-FM can be found at:

<http://www.for.gov.bc.ca/his/esd/>

Information on ESF can be found

at: <http://www.for.gov.bc.ca/his/esf/>

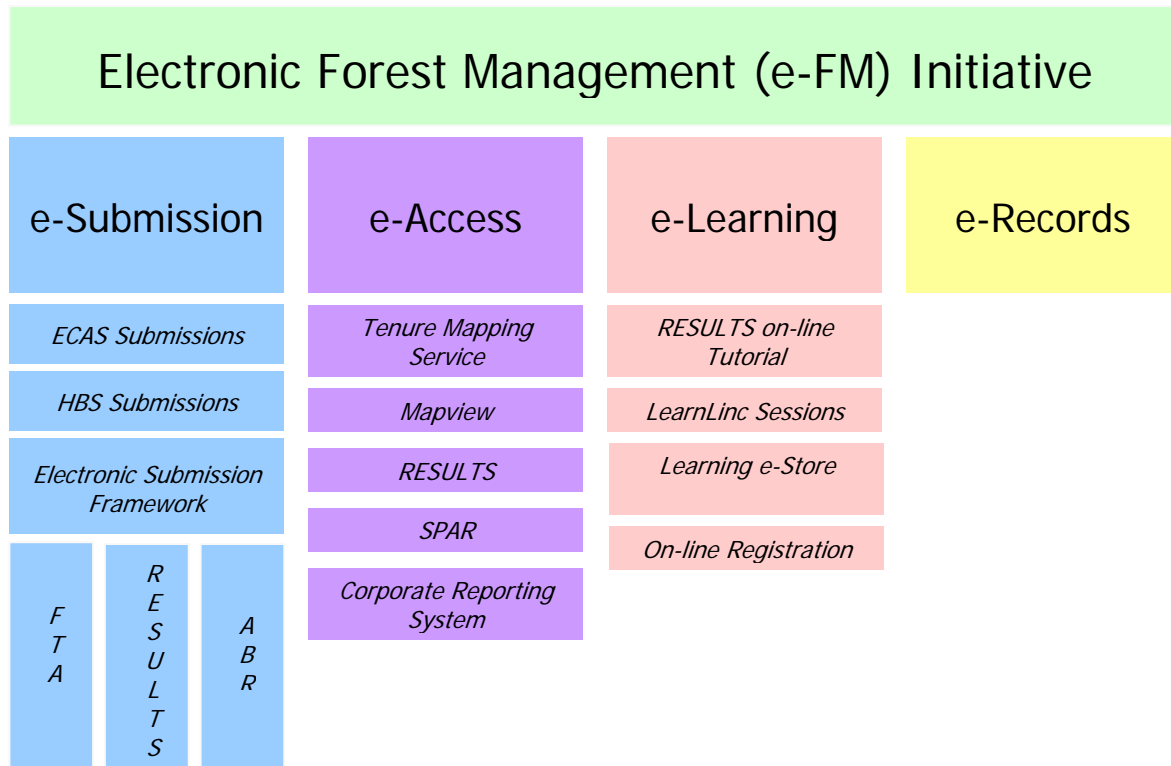


Figure 2-1: Schematic detailing some of the MoFR's e-FM components.

The cornerstone of the electronic submission initiative is that all data will be submitted in a non-proprietary format, based on widely accepted standards. Spatial data (i.e. map information) will be in Geographic Markup Language (GML), and attribute data will be in Extensible Markup Language (XML). Refer to [Section 2.7](#) for more details. Silviculture information submitted to the government must be properly formatted according to the data specifications provided by the MoFR.

Detailed data specifications (schema) and a user guide are available on the MoFR website:
http://www.for.gov.bc.ca/his/esf/index_resub.htm

2.1 Regulatory Environment

The forest industry is currently going through a transitional period between the [Forest and Range Practices Act](#) (FRPA) and the [Forest Practices Code of British Columbia Act \(FPC\)](#). FRPA was enacted in December 2003, but there will be an extended period up to January 1, 2008, where the FPC will still apply to openings harvested prior to the enactment of FRPA.

Silviculture reporting requirements under FRPA will be largely the same as under the FPC. Both the FRPA and FPC have provisions that the Minister may require electronic submissions of reports and may specify the required format and content. See [Appendix B](#) for related FRPA and FPC regulations.

Specific to reporting silviculture information, this means that most licensees are transitioning to the *Forest Planning and Practices Regulation* (FRPA) from the *Timber Harvesting and Silviculture Practice Regulation* (FPC). Woodlot licence holders are going through a similar transition to the *Woodlot Planning and Practices Regulation* (FRPA), from the *Woodlot Licence Forest Management Regulation* (FPC).

2.2 Implementation Timeline

December 1, 2003 - ESF became operational and the Integrated Silviculture Information System (ISIS) was replaced with RESULTS. This is the new electronic data management system used by the MoFR for the submission, storage, management, maintenance, and routing of silviculture data. After this date, all silviculture submissions can be made through the ESF.

For updates to these timelines, see:
<http://www.for.gov.bc.ca/his/results/>

December 1, 2003 to May 31, 2005 - Transitional period during which licensees could either submit directly through the ESF themselves, or they may make submissions to the ministry as they have previously, and the ministry will be responsible for ensuring that the data is put into the ESF system. During this period of time, it was anticipated that industry would begin internal projects to transition to electronic submissions.

June 1, 2005 onward - licensees must make all silviculture submissions, and amendment requests electronically through ESF or through the on-line RESULTS application, either through their own systems or through a contracted service provider.

2.3 Approaches to Making e-Submissions

Those required to make submissions to RESULTS have a variety of options for preparing and managing electronic submissions for silviculture reporting that relate to their specific situation. In general, the main options for submitting electronically are:

- In-house information systems and specialized tools that directly support the creation of the electronic documents required for ESF and RESULTS; or
- The use of service providers capable of preparing and submitting on behalf of a licensee. The use of a service provider can be compared to taking all of your income tax information to a tax preparation company that will prepare your tax return and e-file it on your behalf.

Using in-house systems for making submissions requires that the licensee determine the capability of their existing systems to support electronic submissions. References to information management systems that are commonly used by licensees, with a discussion on approaches to using various systems to meet ESF submission requirements, are provided in [Appendix A](#).

A listing of service providers can be found at:
<http://www.for.gov.bc.ca/his/esd/ServiceProviders.pdf>

There are a wide variety of approaches that those submitting electronically should be aware of. These include using commercially available tools to transform data into the submission standards, and forest management systems that directly support formatting submissions. These are also addressed in [Appendix A](#).

Utilizing service providers is the second key option for creating and submitting RESULTS submission documents. This approach involves providing the necessary information to a service provider who will create a properly formatted submission document and make the submission on behalf of a client. This approach requires very little infrastructure, knowledge and experience on the part of the licensee to perform the RESULTS submissions. This approach does require the licensee to understand the general process and understand how to check on approvals and status of RESULTS submissions through the submission websites. Also, it is critical that organizations choosing this method create a BCeID for their service provider. Service providers should be able to guide those wishing to submit using their services through the process of acquiring a BCeID. For details on the services provided, contact a service provider.

2.4 Getting Access

All access to the website and applications for making electronic submissions to the MoFR requires security measures to ensure appropriate authorizations are in place. Depending on the type of employer, there are two ways a user can get access to the electronic submissions website and related applications. Those in the private sector must use a BCeID account, while MoFR (including BCTS) personnel must use an IDIR account.

2.4.1 BCeID & IDIR

Through BCeIDs, the British Columbia Government provides a common approach for the private sector to access government websites and applications. When a licensee applies for a BCeID account they will receive one corporate account for all participating BC government Internet sites. A person designated by the licensee as the Business Accounts manager will manage this account. Each individual using the account will have a unique logon ID and password. The profile manager can

apply for access and authorization to various BC government sites for each individual. Once a licensee has a BCeID account, all connections to BC government submission sites will use that account. Once granted, the BCeID account is administered by the licensee, and access and authorization for account use is the responsibility of the licensee.

Once a BCeID account is in place, users must apply for the appropriate authority level to access various government systems as detailed in the next section.

BCeID's are associated with client numbers, which are associated with tenures. This presents some unique instances for companies which have undergone mergers/buyouts, and/or for companies which manage/submit data on behalf of multiple client numbers. For companies that have undergone mergers the access to information and submission authorities depends on how the client numbers are associated in FTA. In the situation where Company A buys Company B the tenures held by Company B are usually linked to the client number of Company A, thusly providing access through Company A's BCeID. In the situation in which a company needs access to two or more client numbers, then their BCeID is linked to the additional client numbers. In this scenario the user must specify which client number they are representing for any submission, or while using the RESULTS on-line application, and they can only represent that client number for that submission or for that session in the on-line application.

MoFR users (including BCTS) will use their existing IDIR account, and must also apply for the appropriate authorization level to access various government systems as detailed in the next section.

2.4.2 Systems Access Requirements for e-Submission

There are a variety of systems that a licensee will require access to in order to perform all tasks related silviculture data management and submission. Once a licensee has a valid BCeID account, they must request access to the applications they will be using. Note that access to some government systems is automatically granted when related system access is requested. Outlined in [Table 2.1](#) are the systems that are related to RESULTS submissions and the authority levels.

For the Private Sector

- Further information on BCeIDs and their use in the BC Government can be found on the following website: <https://www.bceid.ca/>
- To request a BCeID for your company for access to MoFR or MAL resources, refer to <http://www.for.gov.bc.ca/his/esd/bceidrequest.htm>

For Government Employees

- Further information on IDIR accounts and access to the ESF and RESULTS can be found on the following website: <http://www.for.gov.bc.ca/his/results/access.htm>

For the Private Sector

To request access to specific applications such as RESULTS with the MoFR, ESF access application forms can be found at: <http://www.for.gov.bc.ca/his/results/accesssx.htm>

For Government Employees

Further information on IDIR accounts and access to the ESF and RESULTS can be found on the following website: <http://www.for.gov.bc.ca/his/results/access.htm>

System	Descriptions	Gaining the required access	Authority options
Electronic Submission Framework Website	Main site for uploading and reviewing the status of electronic submissions.	Must have valid BCeID or IDIR, then request access through ESF Application Access (http://www.for.gov.bc.ca/hs/results) .	<u>Browser</u> : can view data on the ESF site <u>Submitter</u> : can submit data to ESF. Must have this to submit RESULTS data.
RESULTS website	Provides on-line access for the MoFR and licensees to view and update their silviculture data.	Must have valid BCeID or IDIR, then request access through ESF Application Access (http://www.for.gov.bc.ca/hs/results) .	<u>View Only</u> : no data submission or changes, data viewing only <u>Reporting</u> : view only plus run reports <u>Update</u> : as above, plus submit and change data <u>Declaration</u> : as above, plus submit declarations <u>Approval</u> : as above, plus approve/reject proposed standards and opening amendment requests. (MoFR only)
MapView for the Web	Provides an on-line mapping utility to see the information submitted to the ministry relative to existing base spatial information.	Requires BCeID/IDIR account with permissions for access to the ESF website. This access is automatically provided with requests for access to ESF.	<u>View Only</u> : no data submission or changes, data viewing only
CRS	Provides on-line access to the Corporate Reporting System. Application for this authority is only required for BCeID users (it is automatically included with an IDIR account)	Must have valid BCeID or IDIR, then request access through ESF Application Access (http://www.for.gov.bc.ca/hs/results) .	<u>RESULTS Reporting</u> : enables user to generate and view reports from the CRS system

Table 2-1: Description of various MoFR systems and the various Authority Levels associated with each system.

It is important to note that just because a person has the correct authority level to complete a task, they may not have the authorization of the Licensee and/or the Ministry to complete that task. In order for a person to complete a given task they must have the authorization of the Licensee, they need to be on the company signing matrix held at the district office, and they need to have the appropriate authority level.

2.4.3 Access for Consultants

For consulting companies that are preparing and managing submissions on behalf of a licensee, access to submit data to the BC government is provided by the licensee. The licensee provides access to the consulting firm through the licensee's BCeID account. A unique logon and password with the appropriate authority levels must be created and provided to the consultant. Submissions cannot be made using a consultant's BCeID account and doing so may cause the submission to be rejected. A consultant will need a BCeID logon and password from each licensee the consultant works with. This is necessary, as all authorizations to perform tasks are licensee specific.

Licensees are responsible for administering their BCeID accounts. It is up to the licensee to ensure that their consultants have the proper access, and are using that access appropriately.

Consultants working for BCTS will use a government issued IDIR accounts.

2.4.4 Generalized Flow for Gaining Access

The general flow of activities for gaining access to RESULTS is shown in the diagram below.

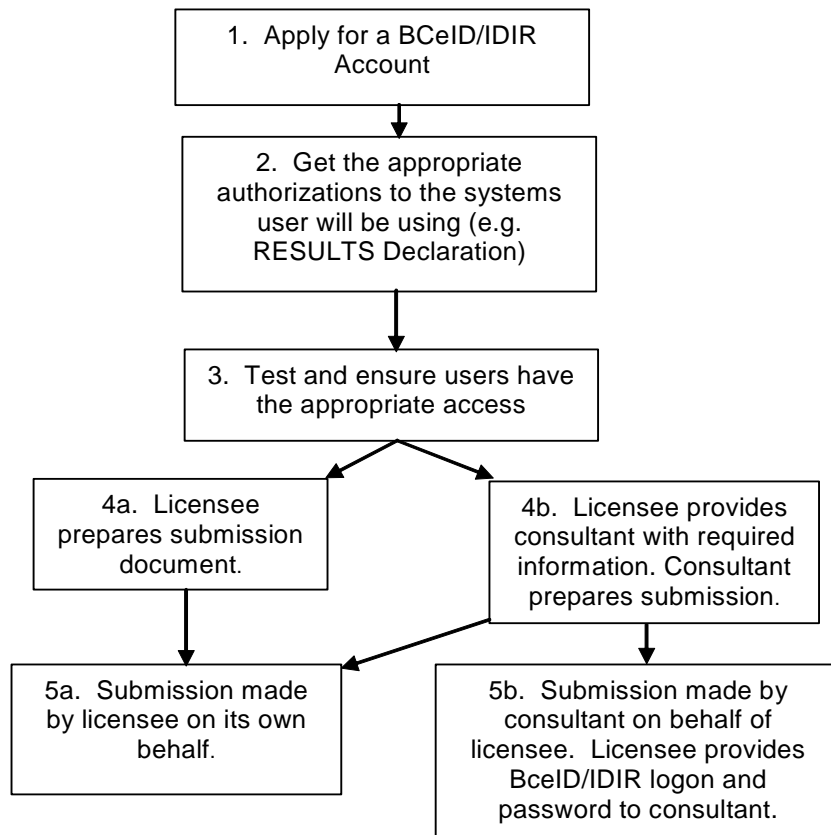


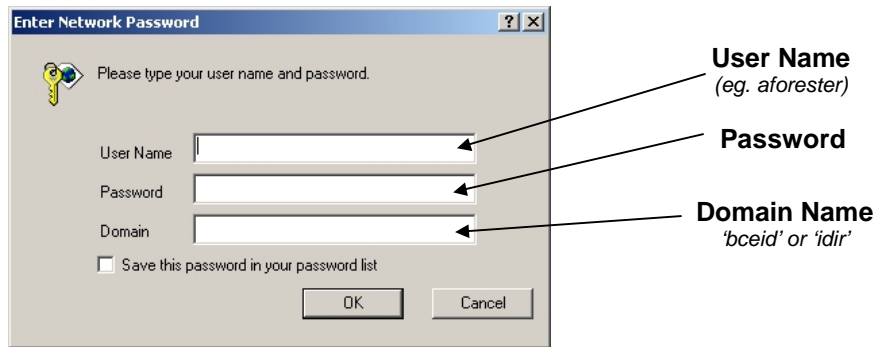
Figure 2-2: Steps to getting secure access to the necessary government computer systems for submissions and on-line updates.

2.4.5 Logging onto ESF and RESULTS

To logon to the ESF and/or RESULTS the user must supply three pieces of information. Depending on the operating system used, the user is offered different ways to supply this information. A user must supply a user name, password and the domain name that they are connecting to. The domain name will be either 'bceid' or 'idir' depending on the user.

For users of Windows 2000/NT/98

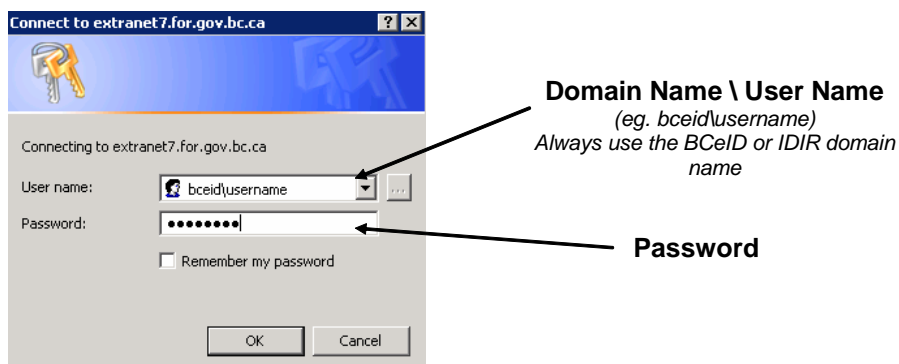
Windows 2000/NT/98 provides three places to enter information when logging onto ESF. All three text boxes must be filled in for the user to gain access to the ESF.



For users of Windows XP

Windows XP displays only two boxes to supply the necessary information to correctly logon to the ESF website. To include all information, the user must include the domain name and the user name in the user name text field separated by a backslash (""). Logon using the following syntax: bceid\username or idir\username.

Keyboards supply a forward slash ("/") and a backslash (""). Using a forward slash in the logon will cause your logon to ESF to fail. Be careful to ensure that a backslash is used when logging on from a Windows XP computer. Many user problems with logging onto the site involve users using the wrong slash when attempting to enter the information.



2.5 Accountability for Electronic Submissions

Licenseses are accountable to the MoFR for any e-submissions documents submitted to the government, not the submitting individual. It is up to the licensee to ensure that people acting on its behalf are fully qualified (i.e. are Registered Professional Foresters where required, are on the signing matrix, etc.). Since paper reports are no longer submitted to the MoFR, the use of a BCeID and password is considered an electronic signature.

That said, as per the *Forester's Act* and Bylaws, all professional documents (including electronic documents) containing professional opinion or work, including reporting on the inventory, classification, management, harvesting and silviculture of forests, must be signed and sealed by a Registered Professional Forester. Since the BCeID is considered an electronic signature, this requirement is fulfilled when submitting to through the ESF. A document that is submitted, and approved electronically is considered to be the official document. Licensees may choose to keep files containing copies of the official documents, but the official version will be held electronically.

2.6 Technology Required to Access and Use ESF and RESULTS

The process of making electronic submissions to the MoFR requires very little technology and no special software; however, creating the submission document will typically require specialized software. All of the technology necessary to make a submission to MoFR likely already exists on your computer. All that is required to submit a properly formatted submission document is a web browser (such as Internet Explorer or Netscape) and a connection to the internet. The process of preparation of the submission document, involves specific technology requirements.

It is recommended that submissions are made using 56K telephone, DSL or Cable Internet connections. Slower internet connections will allow submissions to be made, but upload times will be extended with large submissions. The table below outlines the recommended approaches to submissions given different access to the internet.

It is important to note that the requirements for *preparation* of the submission document are different than those technology requirements to submit the prepared document through the web and check on the status of the submission. For a discussion on the tools and approaches to creating properly formatted documents see [Appendix A](#).

Recommended Web Browsers

Internet Explorer 5 (or newer) or Netscape version 6 (or newer) are recommended when working with the ESF website.

Internet Access	Recommendations
No Internet Access	Utilize a service provider to submit information to the ESF.
Modem (56 or 28.8 kps)	Utilize smaller files in case interruptions in service occur. If large files are necessary, it is recommended that user access a high speed internet connection.
High Speed Internet (DSL or Cable)	No issues are anticipated with high speed access.

Where internet connections are unreliable and are prone to service interruptions, submissions can be broken into multiple smaller files. This will allow for easier management of the uploaded files if service interruptions occur and reduces overall time required if re-submission of missing files is required.

2.7 XML and GML

Documents submitted through the ESF must be in the proper language (i.e. XML/GML) and structure (i.e. schema).

The submission documents utilize XML (extensible mark-up language), which provides a simple way to structure information. The standards for XML are developed by **World Wide Web Consortium** (<http://www.w3.org/>) which sets all standards for the internet, internet data formats and more.

Spatial information stored in the submission document is an extension of standard XML called GML (geography mark-up language). The standards for capturing spatial features in XML (GML) are defined by the **Open GIS Consortium** (<http://www.opengis.org/>), an international spatial standards development consortium.

Further technical information on XML can be found at <http://www.w3.org/XML/>

Further technical information on GML can be found at <http://www.opengis.net/gml/02-069/GML2-12.html>

Files uploaded through the ESF must be XML files (i.e. <submission_file.xml>), and the files must follow a certain structure. The description of the structure of the data and the relationships between features are referred to as document “schemas”. A detailed guide to the structures and content of the submissions can be found at: http://www.for.gov.bc.ca/his/esf/index_reesub.htm. In general, you can think of the structure in a similar manner to the way folders and files are stored on your own computer. There is a main folder, which contains a series of subfolders and files. See [Section 3](#) for a description of the information stored in each of those folders.

2.7.1 Previous submission format with independent spatial and attribute data

In the past, the documents submitted electronically to government separated the spatial data and the non-spatial data into different, yet related files. The structure of the separate spatial and attribute files did not show the relationships or hierarchies between features such as the polygons that collectively form an opening ([Figure 2-3](#)). The format of a RESULTS submission document is non-proprietary in nature, and allows both spatial and attribute information to be integrated into a single document.

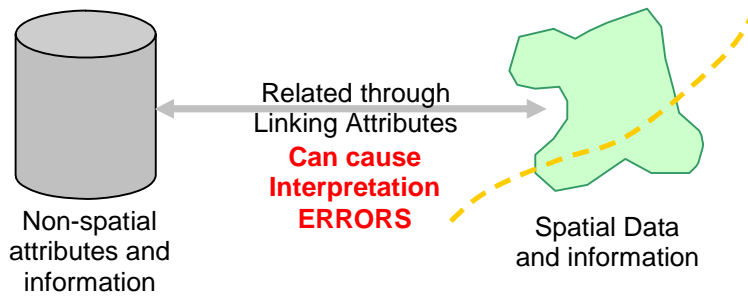
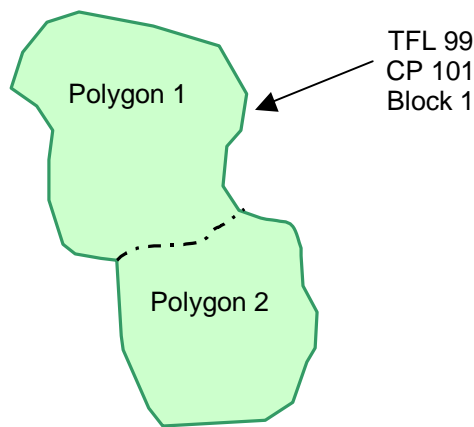


Figure 2-3: Historically attribute data and spatial data were stored separately and linked through common attributes (i.e. opening number). This allowed errors in interpretation.

The RESULTS submission document format and structure requires that attributes and spatial information are integrated and there is very little room for errors or interpretation in relating the spatial and the attribute information. The format is structured to contain information about individual features (such as an opening and attributes) in addition to information about how the features relate to one another (Figure 2-4).

Submission Information Overview



Submission Document Structure

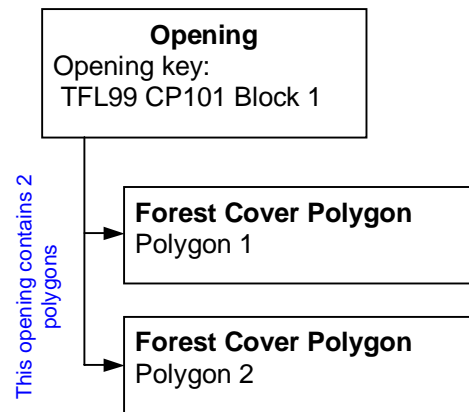


Figure 2-4: This opening is identified as TFL 99 CP 101 Cutblock 1. The opening is made up of 2 forest cover polygons. The polygons are both contained within the opening structure and formatted to show that relationship.

2.8 Generic Submission Process

The process for submitting information and receiving notifications is similar for all ESF submissions, and is shown in Figure 2-5.

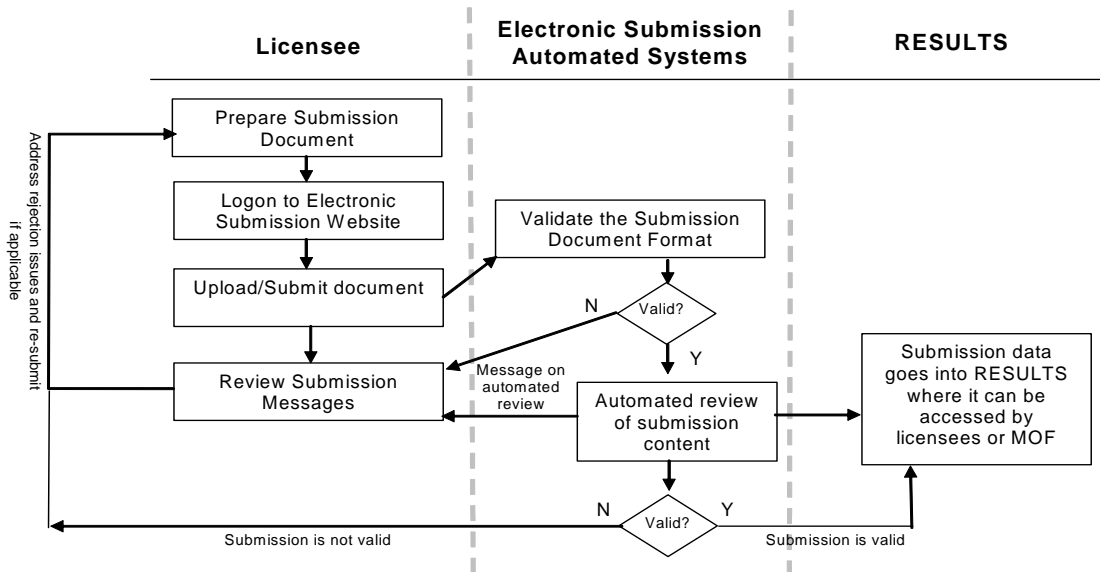


Figure 2-5: Electronic Submission Process for RESULTS

Steps to Submitting Silviculture Information

Preliminary Steps

1. Ensure that all the necessary access and technologies are in place for your company.

See [Section 2.6](#) for an overview of the technologies necessary for making electronic submission to the MoFR. It is also necessary to ensure that the company submitting the silviculture information has the appropriate authority level to the required government systems. For details on the required access see [Section 2.4](#).

2. Gather the necessary RESULTS submission document information.

All of the digital files (information required for opening definition, disturbance and activities, forest cover, declarations) for inclusion in the RESULTS submission document should be prepared (see [Section 3](#)). Having all the appropriate information will make the entire process much faster.

The information requirements for RESULTS submissions are identified in the submission content and structure guides available at: <http://www.for.gov.bc.ca/his/esf/> and in [Section 3](#).

Creation and Submission of the RESULTS Submission Document

1. Prepare a properly formatted document for each RESULTS submission.

Preparation of the submission documents will occur through a variety of mechanisms and is dependent on the licensee mapping and information management environment, level of computer and software expertise, and the type of submission being made. [Appendix A](#) outlines various computer tools and common applications that are utilized for management of forest information in British Columbia and approaches for preparing electronic submissions with these applications. [Section 3](#) goes into more detail about the submission document.

2. Logon to the Electronic Submission Website

The ESF website is located at <http://extranet7.for.gov.bc.ca/esf/>.

From the RESULTS application (<http://extranet7.for.gov.bc.ca/results/>), you can navigate to the Electronic Submission website by clicking the “data submission” tab on the menu bar and selecting XML Submission from the drop down menu.

Some e-submission software packages allow for the submission of the document with a “1 button” approach, which eliminates the need for the user to navigate to the ESF website them self.

Logons to the ESF website require the proper security access (BCeID/IDIR). For information on the required access permissions, see [Section 2.4](#).

Once you have logged on, select “Upload Submission” on the main screen of the Electronic Submission website, as shown in Figure 2-6.

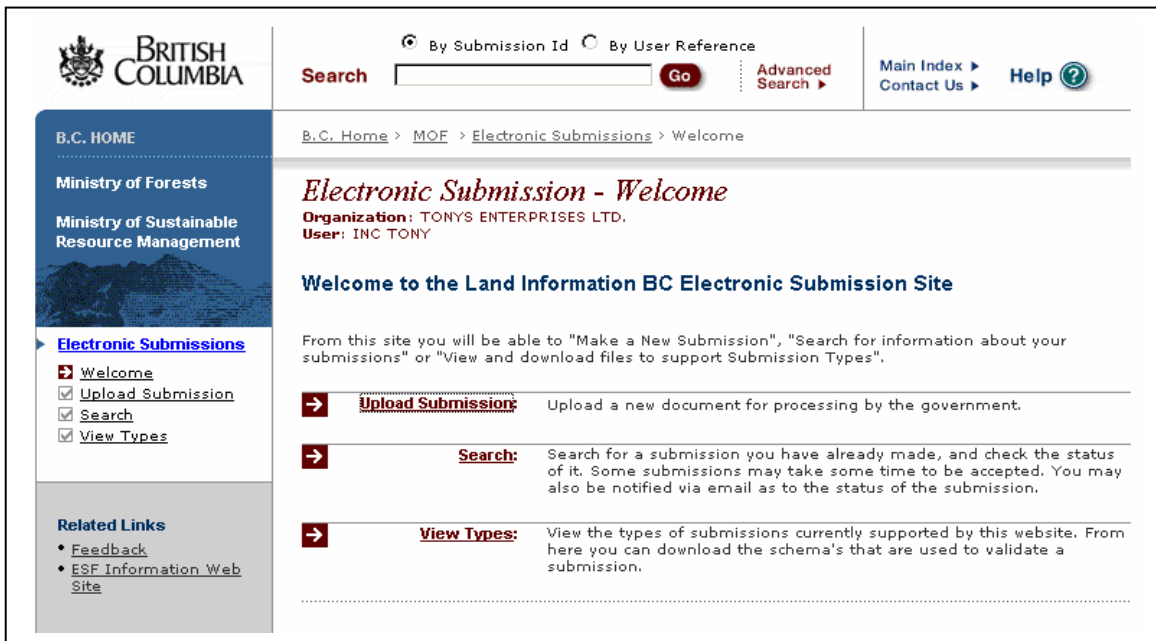


Figure 2-6: The ESF website

3. Upload/Submit Document

Uploading submission files is as simple as selecting the submission type (for silviculture information submissions select the “opening submission”), and using the Browse button to select a properly formatted submission document. Then click the “Upload Submission” button (Figure 2-7). If all ESF files are stored in a designated folder on your desktop, this will simplify locating them with the ESF Browse button.

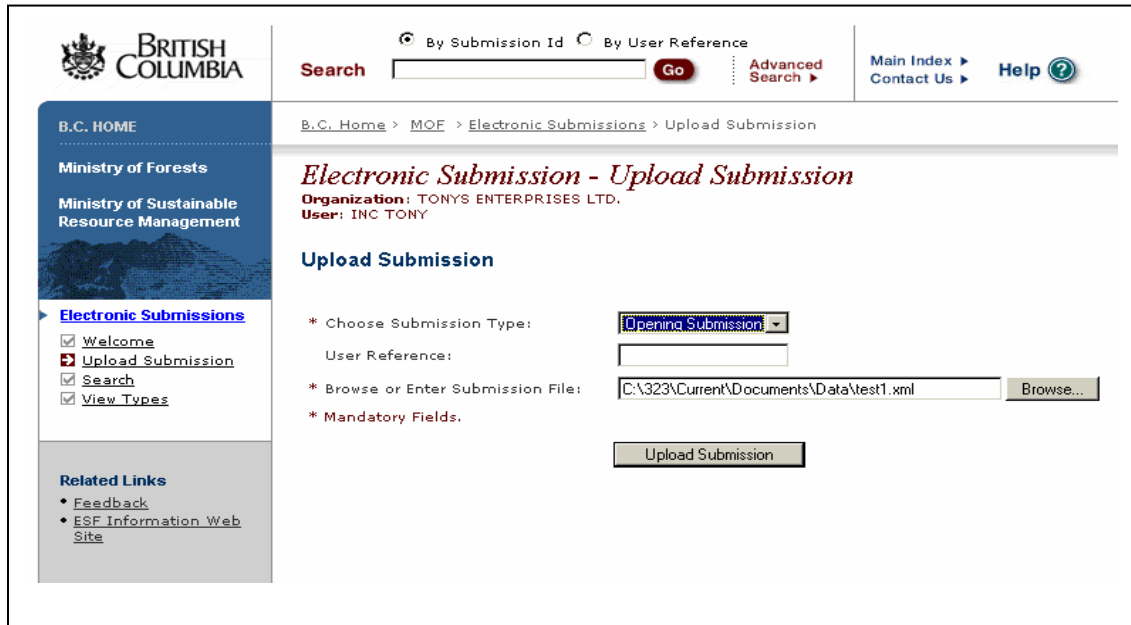


Figure 2-7: Uploading a file on the ESF website. Use the “Opening Submission” type from the “Choose Submission Type” drop down menu for all submissions to RESULTS.

4. Review Automated Messages

Within a few seconds of uploading a submission through the ESF, the submitter is notified as to whether the submission has been accepted or if automated format verifications and submission content checks have caused the submission to fail.

If the submission fails, resolve the issues identified by the messages returned and resubmit the submission file. Often failed submissions are returned with an error code. By clicking on the error code hyperlink, users will be taken to another window in which the error is defined, and a solution may be provided for the error.

If the data is successfully received, it will then be uploaded to the RESULTS.

5. Checking Status of Submissions

By clicking on the “Search” hyperlink on the ESF website (Figure 2-6) the user can search for a submission. By entering various information the user can search for a specific submission, all the submissions, submissions by date, etc.

6. View the data in the RESULTS on-line application

Following a successful submission, users can view the information using the RESULTS on-line application. RESULTS allows the user to review all attribute information stored for an opening as well as any stored spatial data (note maps may take approx 24 hrs before they are available).

3 Silviculture and Land Status Reporting

3.1 Overview of Silviculture and Land Status Reporting

The **Reporting Silviculture Updates and Landstatus Tracking System (RESULTS)** is the information management system for tracking and reporting silviculture accomplishments, and replaces the Integrated Silviculture Information System (ISIS) and associated forms (Table 3-1). The RESULTS system became operational on December 1, 2003, and electronic submissions were to be phased in until May 31, 2005. Beginning June 1, 2005, all licensees must submit silviculture and forest cover information required by *the Forest and Range Practices Act* or the *Forest Practices of British Columbia Code* in electronic format (XML/GML). Similarly woodlot licence holders are required to submit annual reports in an electronic form as specified by the Woodlot Administrative Review and Recommendation Team (WARRT).

Electronic submissions will be made through the ESF website or through the user's e-submission software solution. After information has been submitted and validated, licensees can view their silviculture information on the RESULTS web application, and run reports on their data.

The information required will be substantially the same as what was required for forms A, B, and C (as of December 17, 2002), including spatial information, but the terminology is changing. There are no forms to fill out, everything is done electronically.

Old Terminology	New Terminology
Form A	Opening Definition
Form B	Disturbance
	Silviculture Activity
Form C	Forest Cover Polygon
	Milestone Declaration

Table 3-1: Old Forms replaced with new submissions to RESULTS.

3.1.1 Generalized opening lifecycle and e-submissions

To meet silviculture requirements, licensees generally manage openings from the initial disturbance through to achieving free growing status. Throughout this lifecycle licensees are required to periodically submit various information (including: the standards against which the opening will be measured, any activities that take place within the opening, and the forest cover of the opening) to MoFR. The exact timing and content of these submissions will vary from opening to opening, and are discussed in more detail in Section 3.8 through Section 3.12, but can be generalized as in Table 3-2.


Harvest	Planting	Regeneration Survey(s)	Silviculture Activities (e.g. brushing, spacing, pruning, etc)	Free Growing Surveys
				
Year 0				Year 20
Opening Definition, Disturbance Report, Forest Cover Submission	Silviculture Activity	Silviculture Activity, Forest Cover Submission, Milestone Declaration	Silviculture Activity	Silviculture Activity, Forest Cover Submission, Milestone Declaration

Table 3-2: Generalized lifecycle of an opening and the related e-submissions that are required/recommended.

3.2 RESULTS and Other Systems

Figure 3-1 outlines the flow of information from the Forest Stewardship Plan through to achieving free growing status. It shows where RESULTS and other MoFR systems (including FTA, ABR, ECAS), fit into the whole picture of electronic forest management for a license holder. Note that while ABR and ECAS are not part of RESULTS or this guide, they are included in the diagram to provide a complete picture. Figure 3-1 is not complete, as it would be impossible to document all the system links in this document in a reasonable fashion. The take home message is that the information is linked, and there are dependencies between the systems. Information submitted may be used by other systems, or other organizations. For example, data from RESULTS is used by [MAL](#) to update the [TRIM](#), and [VRI](#); [CRS](#) for reporting; [SPAR](#) for opening information; etc.

A web based course: 'An Orientation to MoFR Business Applications' is now available to ministry and non-ministry staff. It provides an overview of the key business applications and how they are inter-related. To view this course, log onto the MoFR E-learning site (<http://www.learningstore.com/bcmof>) click on 'Business Applications' in the topic drop down on the left of your screen, and click search. New users should read the instructions on the welcome page.

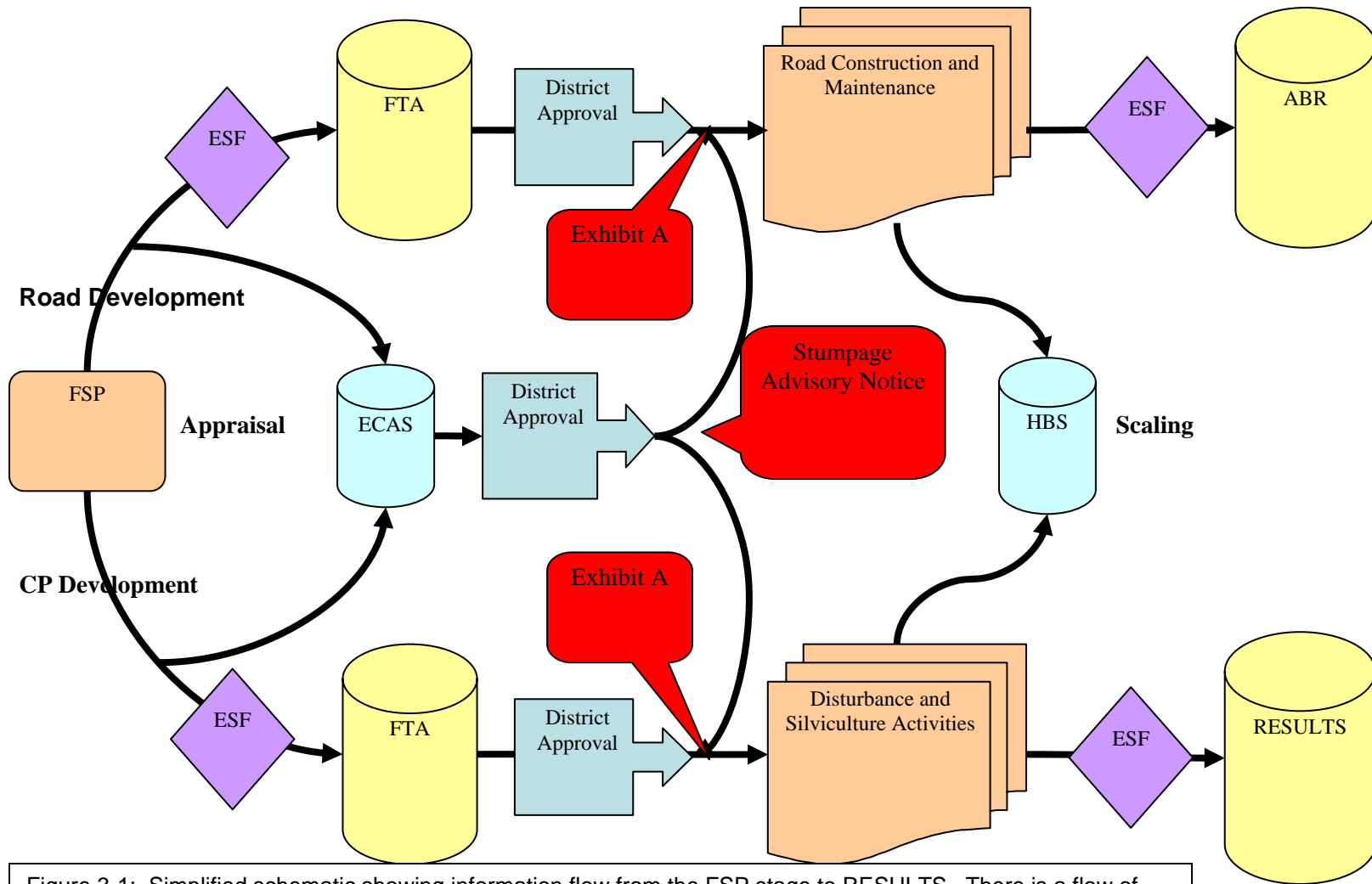


Figure 3-1: Simplified schematic showing information flow from the FSP stage to RESULTS. There is a flow of information through all the systems and each system is linked in various ways. It is important to note that this diagram is not all encompassing and does not show all of the linkages.

3.3 General Submission Guidelines

Electronic submissions to RESULTS are made by uploading a submission document to the ESF website. As mentioned in [Section 2.4](#), you will need your BCeID or IDIR username and password to access this site.

The ESF Website's URL is:
<http://extranet7.for.gov.bc.ca/esf/>

A RESULTS submission document can contain more than one opening, and each opening can contain more than one submission item (opening definition, disturbance, silviculture activity, forest cover polygon, or milestone declaration). For example, the same RESULTS submission document could contain several openings, with silviculture activities for all openings, and a forest cover report, in addition to milestone declarations for some of the openings, provided that the submissions are for the same licensee, within the same forest district, and have the same contact person.

Key points:

- RESULTS is linked to the FTA system, and a corresponding cutblock **must** exist in FTA in approved status before an opening definition will be accepted by RESULTS (note the exception to this rule is P87 openings which do not have to be in FTA)
 - If your RESULTS submission is rejected because the cutblock is not found in FTA, the submitter should check FTA, and ensure that the opening key ([Section 3.7](#)) in the RESULTS submission document matches exactly with the key in FTA
 - If the keys match, then call the appropriate MoFR District Office [RESULTS Coordinator](#)
- If an opening is submitted with several different submission items, and one of the items fails the automated validation tests, this will cause all of the submission items for that opening to fail. Other openings submitted in the same document may still pass (Figure 3-2).

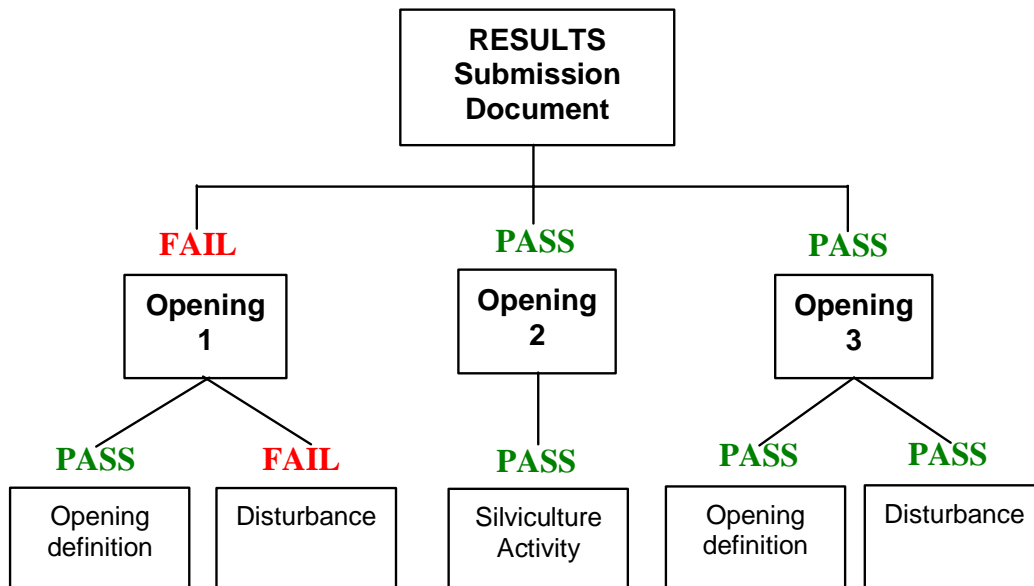


Figure 3-2: Schematic of a submission to RESULTS showing a single opening fail while the remaining openings pass.

3.4 Rejected Submissions

Submissions to RESULTS may not be accepted for various reasons. The first could be that the submission didn't follow the proper schema, or perhaps there was an error in the XML document structure. This error will be identified very quickly by the ESF.

The second reason that a submission may be rejected is because the submission did not meet some built-in business rules. Some of these rules are included in the applicable section within this guide (section 3.6-3.12), and a full list is included in the RESULTS technical documentation, located at the following website: <http://www.for.gov.bc.ca/his/results/webhelp/index.htm>

3.4.1 Error Messages

When a submission is rejected an error message is included with the rejection notification. By clicking on the hyperlinked error message identification number or by navigating to the technical documentation page (<http://www.for.gov.bc.ca/his/results/webhelp/index.htm>) you will find a description of the error, and often times a recommended solution. These lists of error messages cannot cover every possible error, but they do cover the most common errors.

3.5 Help and Support

In the event that you need help and/or support which is beyond the capabilities of this guide (SISG), the Electronic Submission Framework RESULTS Submission Guide, the RESULTS website (including the technical documentation), the RESULTS on-line application help screens, or the [RESULTS Questions and Answers page](#)) then there are other sources of to go to for help.

If existing documentation does not provide the help you need, then you should contact the appropriate MoFR District RESULTS Coordinator. These are the local RESULTS experts, and their contact information can be found on the [RESULTS homepage](#).

The final RESULTS support service is the Business Application Support Service. BASS operates during normal MoFR business hours. The email address is FORHISP.APPHELP@gems5.gov.bc.ca, and the phone number is 250-387-8888.

This service allows users to pose real questions to real people, who will provide direction in a timely manner. It is recommended that you include the word RESULTS in the subject line of your email.

3.6 General Content Requirements

There are a number of components that are common to all RESULTS submissions, including:

Submission Header	Contains information that ensures that the submission is processed correctly by the ESF system (including schema location, and processing information).
Submission Metadata	Contact information, including email address and phone number, for the person making the submission. In the case of a service provider a submission on behalf of a licensee, this would be the licensee contact information.
Submission Content	This may include a name and description of the submission. This can be thought of as a folder containing the RESULTS metadata and openings.
RESULTS Metadata	This is general information about the RESULTS submission and must include the forest district code, MoFR client code, client location code (used to identify different divisions of a company), licensee contact name, phone number and email address, date the submission was created, and a validation indicator (indicates whether the submission should be uploaded to RESULTS, or if it is just to be validated, not uploaded). The MoFR client code and client location codes are assigned by the Ministry and can be found by accessing RESULTS and viewing any existing opening or search on the client field.
Opening	This contains all of the information about the opening for a given submission including: opening key, opening definition, disturbance, silviculture activity, forest cover polygons, and milestones. There may be one or more openings per submission, and one or more opening items per opening

Table 3-3: Common information required for each submission.

Additional Components will vary depending on the type of submission being made.

The overall format and relationship of all the components that make up a RESULTS submission could look like Figure 3-3.

Additional technical descriptions of the required content and structure of a RESULTS submission document may be found in the *Electronic Submission Framework (ESF) RESULTS Submission Guide*, which can be found at: http://www.for.gov.bc.ca/his/esf/index_ressub.htm. Click on the User Guide download link.

For specific information on the opening content see Section 3.7 to Section 3.12 of this guide.

RESULTS Submission Document Format

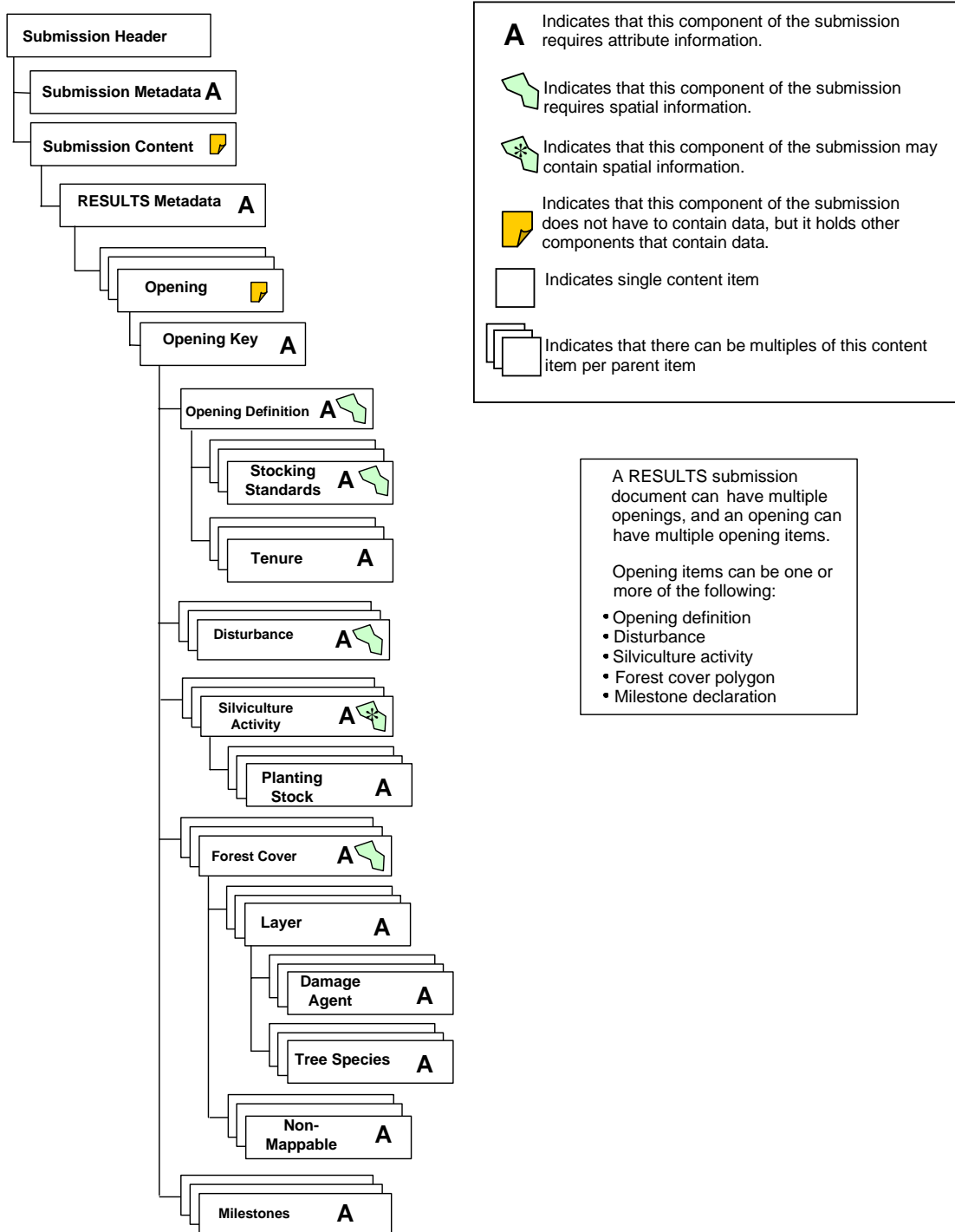


Figure 3-3: Stylized diagram showing the format (i.e. schema) of submission components.

3.7 Opening Key

The opening key identifies an opening in an XML/GML submission. The opening key will link the current submission to the proper opening in the RESULTS database.

3.7.1 When is it required?

If a submission contains information about an opening(s), an opening key must be provided.

3.7.2 Schema Layout

The figure below shows a diagram of the Opening Key schema. Note that only one Opening Key (Tenure, Timbermark, Opening Number, or Opening ID) is required per submission.

RESULTS Submission Document Format

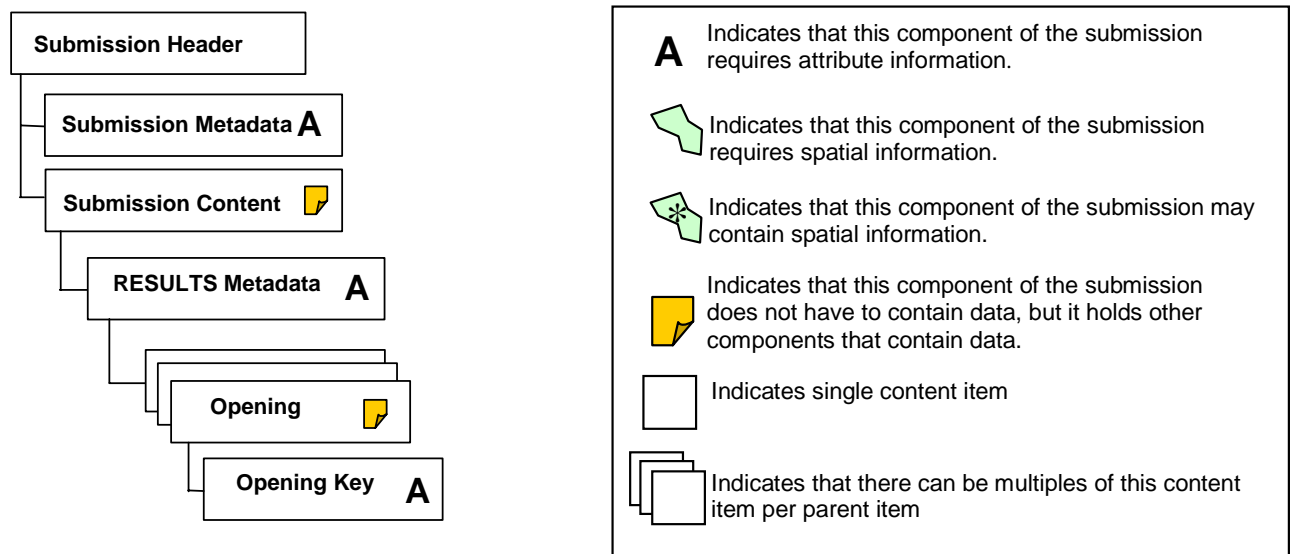


Figure 3.7.2-1: Stylized diagram showing the format (i.e. schema) of the Opening Key

3.7.3 Attribute Data Requirements

Only one Opening Key is required; however, more than one opening key can be included in a submission, provided that they refer to the same opening. (Note that numbers in brackets in the following sections indicate the maximum number of characters allowed for that field)

RESULTS and FTA

There is a link between FTA and RESULTS. Cutblocks must exist and be approved in FTA in order for openings to be created in RESULTS. The Opening Tenure Key or the Opening

Timbermark Key must be identical to the Tenure/Timbermark information in FTA, or an error will be generated, and the submission will not be accepted.

New Submissions to RESULTS

For openings that are being submitted to RESULTS for the first time (i.e. the opening does not exist in the RESULTS database yet), either of the Timbermark Key, or the Tenure Key must be used. Since these keys will link to FTA, the key must match exactly with information in FTA.

If the Tenure or Timbermark key does not match (i.e. find) the same key in FTA, the submission will be rejected. For example, if the cutblock in FTA is identified as PY1B, the ESF will reject a RESULTS submission document that refers to the opening as PY1-B or PY 1B.

If the RESULTS opening key does match with FTA, then an opening will be created in RESULTS and corresponding tenure information from FTA will populate RESULTS (as shown in [Section 3.7.5](#)).

Opening Tenure Key

This must be entered in exactly the same format as it exists in FTA.

- **Licence Number** – The licence number of the opening corresponding to the cutting authority.
 - Required
 - Alphanumeric (10)
 - E.g. TFL49, A19204, W0012
- **Cutting Permit** – If applicable this is the cutting permit for the opening corresponding to the licence in the cutting permit document.
 - Conditional
 - Alphanumeric (3)
 - Include if a cutting permit exists for the opening
- **Cutblock** – The approved cutblock identifier for the opening.
 - Required
 - Alphanumeric (10)
 - Cannot be longer than 10 characters
 - No leading zeros (unless the zeros exist in FTA)
 - Special characters and spaces are not recommended (e.g. -,/,_,*)
 - E.g. 1002LM

Opening Timbermark Key

This must be entered in exactly the same format as it exists in FTA.

- **Timbermark** – The Timbermark for the opening.
 - Required
 - Alphanumeric (6)
 - FT8675, 67801

- **Cutblock** – The approved cutblock identifier for the opening.
 - Required
 - Alphanumeric (10)
 - Cannot be longer than 10 characters
 - No leading zeros (unless the zeros exist in FTA)
 - Special characters and spaces are not recommended (e.g. -,/,_,*)
 - E.g. 1002LM

Subsequent Submissions to RESULTS

If the opening already exists in RESULTS then subsequent submissions to RESULTS can use the Opening Tenure Key, or the Opening Timbermark Key, or the submission may also use the Opening Number Key, or the Opening ID Key.

Opening ID Key

The opening ID is a unique identification number generated automatically by RESULTS. An Opening ID is automatically assigned to an opening by RESULTS when the first submission for that opening is made. This number is used to uniquely identify a harvest entry. For example, if the same cutblock area had a first past harvest in 1975, and a second pass harvest in 2000, each harvest entry would have a different opening ID, even though the opening number may be the same. This way, obligations related to each harvest entry can be tracked separately.

- **Opening ID** – A unique number generated automatically by RESULTS to represent the opening.
 - Required
 - Integer (10)
 - E.g. 61100, -337170000, 9528

Opening Number Key

Opening Number (mapsheet and opening number). Opening numbers can automatically be assigned by RESULTS when the opening is created in the database if the opening does not already have an opening number in the RESULTS database. This is an optional feature and District offices can choose whether this feature is turned on or off. If it is elected to be turned off, then the opening number will be assigned by the District as per current District process (with the catch that RESULTS will compare any submitted Mapsheet/opening number against a mapsheet calculated from the spatial data. If the mapsheets match then the submitted mapsheet/opening number will be used for that opening, but if the mapsheets do not match, the calculated mapsheet will be applied, and the opening number will be left blank so that it can be assigned at a later date). Once an opening has an assigned opening number, that number can be used as the opening key for future submissions to RESULTS. The opening number can be manually entered/modified in the RESULTS online application on the opening inquiry page.

- **Mapsheet Grid** – The Mapsheet grid number as per the NTG or BCGS grid. Examples include: 082, 083, 113, 114.
 - Required
 - Non-negative integer (3)

- **Mapsheets Letter** – The mapsheet letter as per the NTG or BCGS grid. Examples include: A-P and W.
 - Required
 - Alphanumeric (1)
- **Mapsheets Square** – The BCGS number or NTG number and Letter. For BCGS numbers are 1-100, and for NTG numbers and letters values are 1-16 and A-H and W respectively.
 - Required
 - Alphanumeric (3)
- **Mapsheets Quad** – Mapsheet quadrant. Blank in NTG number/letter value entered and 0-4 if BCGS number entered.
 - Conditional
 - Non-negative integer (1)
- **Mapsheets Subquad** – Mapsheet sub-quadrant. Blank if NTG number/letter entered and 0-4 if BCGS number entered.
 - Conditional
 - Non-negative integer (1)
- **Opening Number** – A unique identifier that describes an opening on a specified mapsheet.
 - Required
 - Alphanumeric (4)
- **Example Mapsheet Grid/Letter/Square/Quad/Subquad/Opening Number:**
 - 92L 012 0.0 163

3.7.4 Spatial Mapping Standards

No spatial data is included with this component of a submission document.

There is no spatial link between the tenure information stored in FTA, and the opening in RESULTS

3.7.5 What the submission will look like in RESULTS

The screenshot shows the RESULTS application interface. At the top, there is a navigation bar with 'Application Home' and 'Help'. Below that is a 'RESULTS' header with a search bar and several tabs: Search, Inbox, Openings, Data Submission, Admin, Event Tracking, and Reports. Underneath the tabs is a secondary navigation bar with links: Opening Inquiry, Multi-Tenure, Stocking Standards, Activities, Forest Cover, Milestones, Land Status, and Attachments. The main form area contains the following fields and values:

- Org Unit: DKA - Kamloops Forest District
- Status: APP - Approved
- Client: WEYER, 11
- Name: WEYERHAEUSER COMPANY LIMITED
- Opening: 92, 088, 0.0, 77
- Opening Id: 61100
- Licensee, Opening Id: (empty)
- Licence No: A18694
- CP: 613
- Cut Block: 14
- Timber Mark: EU3613

Below the form, there are area calculations:

- Exhibit A Area (ha): 21.5
- Disturbance Gross Area (ha): 8.6
- MAR (ha): 8.6
- Forest Cover Area (ha): 21.5

At the bottom right, there are buttons for Go, Clear, SP Map, Map View, History, and FTA.

Figure 3.7.5-1: Examples of various Opening keys as they would appear in the RESULTS application. Note that the Exhibit A area is from FTA.

3.8 Opening Definition

The opening definition includes:

- previous stand information such as:
 - stand type
 - species composition
 - age class
 - height class
 - site index
- maximum allowable permanent access percentage
- standard unit (SU) information such as:
 - SU ID
 - net area
 - biogeoclimatic (BGC) zone
 - subzone
 - site series
 - maximum allowable soil disturbance percentage
 - Standards Regime ID

If an opening is part of a multi-tenure cut block, this is also identified in the opening definition. The opening definition includes attribute as well as spatial data.

3.8.1 When is it required?

This information is required the first time an opening is submitted (i.e. after completion of harvest), but may be submitted at any time to update previously submitted information. This information must be submitted before June 1 for all areas on which harvesting occurred in the previous fiscal year (April 1 through March 31). Woodlot Licence holders may be subject to alternative reporting, as they are bound to submit information in a form specified by the chief forester on or before April 30 each year.

Additionally, when there are changes to standard units or Standard Regime those changes must be submitted to RESULTS by the applicable date. The applicable date is

- The date the information describing the change was furnished for changes before planting occurs
- The date the requirements for regeneration delay have been met, or the requirements for the regeneration delay have not been met but the regeneration delay date has passed
- The date a free growing stand has been declared under sec 97 of FPPA, or a free growing stand has not been established, but the free growing date has passed.

See the *Forest Practices and Planning Regulation* and the *Timber Harvesting and Silviculture Practices Regulation* for regulations related to disturbance reporting ([Appendix B](#)).

3.8.2 Schema Layout

The figure below shows a diagram of the opening definition schema. For a given opening there can only be a single opening definition, which identifies the entire opening. This will include both attribute, and spatial information. Within that opening definition there can be multiple standard units, which also contain both attribute and spatial information. There may be more than one tenure for a given opening, and this consists only of attribute information.

RESULTS Submission Document Format

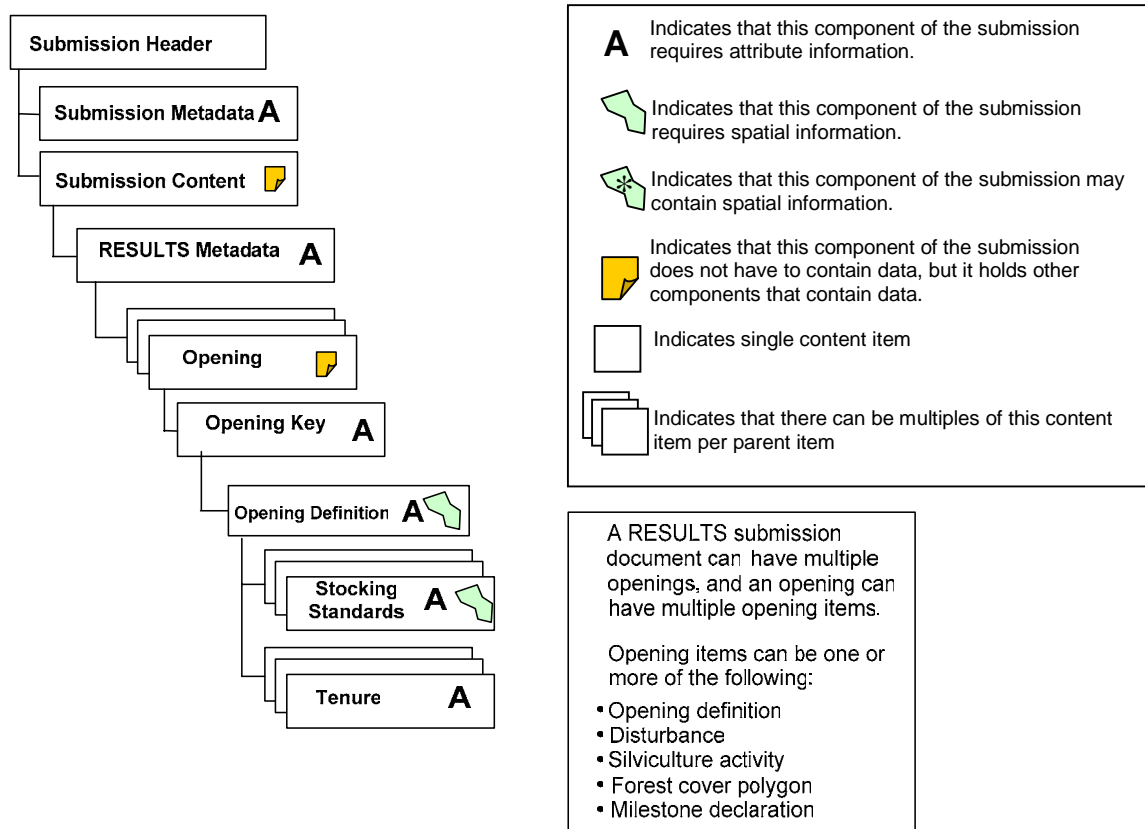


Figure 3.8.2-1: Stylized diagram showing the format (i.e. schema) of submission components.

3.8.3 Attribute Data Requirements

(Note that numbers in brackets in the following sections indicate the maximum number of characters allowed for that field)

Opening Definition: (Required)

- **Action** – Values of either I (Insert) or U (Update). The I is for new opening definition submissions to RESULTS, and the U is for updating opening definitions that have previously been submitted to RESULTS. The update action code is a full delete and replacement action. All existing information about the opening definition is deleted and replaced with the updating submission. Users must ensure that they supply all the information for all the components of the opening definition if they use the U action code.
 - Required
 - Alpha (1)
- **Licensee ID** – An optional field, which allows the licensee to provide a unique identifier to identify the opening.
 - Optional
 - Alphanumeric (30)

- **Opening Category** – The type of category of the opening. It indicates who holds the obligation and the extent and nature of the obligation. Examples include: FTML – Forest Tenure Major Licensee, FTSBF – Forest Tenure Small Business Forest Enterprise Program, NDFS – Natural Disturbance – Forest Service.
 - Required
 - Alphanumeric (7)
 - Must be a valid Code (see [code table section](#) for Opening Category Code list)
- **Opening Location Name** – Field for licensee to identify the location name of the opening. Examples include: Petersen Creek, Skull Mountain.
 - Optional
 - Alphanumeric (30)
- **Opening Gross Area** – The total area of the opening inclusive of all standard units, roads, reserves, and non-productive areas.
 - Required
 - Decimal (6) (1)
 - Must be greater than zero
 - For group selection this includes the entire area that is being managed as an uneven-aged stand including unharvested areas (next pass) and previously harvested areas
 - When a road is located on the perimeter of an opening and the road is to be included in the block and the adjacent area is either harvested or expected to be harvested, then only one-half of the area of the road should be included in the gross area calculation
 - When a road is located on the perimeter of an opening and the road is to be included in the opening and the adjacent area is not anticipated to be harvested, include the entire road area in the gross area calculation
 - When an existing road is located on the perimeter of an opening and the existing road is to be excluded from the opening and the road provides some or all of the access to the opening then the gross area should only include the area where any newly constructed road is located, and the existing road should not be included
 - If the road is authorized under a cutting permit or timber sale licence, it should be included as a part of the gross area
 - If the road is constructed under a road permit, then the area of the road should be excluded from the gross area
 - When a reserve is located on the perimeter of a block, its area is included in the gross area
 - Fully external reserves are included in the gross area calculation
 - When a natural, non-productive area is located on the perimeter of a block it is not included in the gross area

- **Previous Stand Type** – The previous stand type. Examples include: MAT – mature stands, IMM – immature stands.
 - Required
 - Alphanumeric (3)
 - If the opening has more than one existing forest cover label, use the label from the largest polygon for the entire opening
 - Must be a valid code (see [code table section](#) for Stand Type Code List)
- **Previous Species 1** – The dominant species of the stand before harvest.
 - Required
 - Alphanumeric (3)
 - Must be a valid Code (see [code table section](#) for Species Code list)
- **Previous Species 2** – The second major species of the stand before harvest if applicable.
 - Optional
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Species Code list)
- **Previous Age Class** – A 1-digit code indicating the age class of the previous stand type. Age classes are intervals, or ranges, of ages into which trees, forests, stands, or forest types are divided into for classification and use.
 - Required
 - Alphanumeric (1)
 - Must be a valid code (see [code table section](#) for Age Class Code list)
- **Previous Height Class** – A 1-digit code indication the height class of the previous stand. Height classes represent intervals into which the range of tree or stand heights is subdivided for classification and use. Enter a valid height class code.
 - Required
 - Alphanumeric (1)
 - Must be a valid code (see [code table section](#) for Height Class Code list)
- **Previous Stock Class** – The previous stock class of the stand. Examples include: 1 – stock class 1, 2 – stock class 2, R – mature residual.
 - Required
 - Alphanumeric (1)
 - Must be a valid code (see [code table section](#) for Stock Class Code list)
- **Previous Site Index** – The previous site index of the stand. This is a measure of the productivity of forest land. Enter the projected average height in metres of the leading species of the forest cover label at 50 years after the stand achieves breast height (1.3m).
 - Required
 - Non-negative integer (2)
 - Enter the site index for the leading tree species in the previous stand

- **Previous Site Index Source** – The source of the previous site index. It describes the source, or origin, of the site index. Examples include: C – site index from site index curve, H – site index from stand before harvest.
 - Required
 - Alphanumeric (1)
 - Must use the most accurate method of collecting site index. See selecting a method to estimate site index on the FS 660 (<http://www.for.gov.bc.ca/isb/forms/lib/FS660.PDF>)
 - Must be a valid code (see [code table section](#) for Site Index Source Code list)
- **Maximum Allowable Permanent Access Percentage** – The maximum percentage of the opening's gross area that can be occupied by permanent access structures. It includes roads, landings, gravel pits, burrow pits, permanent trails.
 - Conditional
 - Decimal (3) (1)
 - Default value is 7.0%
 - Must be a valid decimal number between 0.0% and 99.9%
- **Site Plan Exemption** – Values of either Y (yes) or N (no). Set the value to Y if the opening is exempt from requiring a site plan, and set to N if the opening is not exempt from requiring a site plan.
 - Required
 - Alpha (1)

Standards:

Note that a single opening can have one or more standard units.

- **Standards Unit ID** – A licensee assigned identifier for the SU. Examples include: 1, 2, 3, or X, Y, Z.
 - Required
 - Alphanumeric (4)
- **Net Area** – The net area of the SU (i.e. not including roads, reserves, non-productive areas).
 - Required
 - Decimal (6) (1)
 - Must be greater than 0
 - Sum of all SU's net areas cannot exceed gross area of the opening
 - For roadside harvesting operations the portion of roadside work areas located outside of the road prism should be included in the NAR and not be included in the estimate of the area occupied by permanent access structures (gross area).
- **BGC Zone** – The biogeoclimatic zone of the SU. It represents a large geographic area with a broadly homogeneous macroclimate which influences the development of vegetation and soil. Example include: IDF, MS, CWH.
 - Required
 - Alphanumeric (4)
- **BGC Sub-Zone** – The biogeoclimatic sub-zone of the SU. Example include: dk, xc, mk.
 - Required
 - Alphanumeric (3)

- **BGC Variant** – The biogeoclimatic sub-zone variant. Division of the BGC sub-zone based on differences in the floristic composition of the zonal ecosystem, but usually on the basis of differences in the cover and vigor of the plant species. Examples include: 1, 2.
 - Optional
 - Alphanumeric (1)
 - Include where applicable
- **BGC Phase** – The biogeoclimatic phase. Accommodates the variation resulting from local relief in the regional climate of the subzones and variants.
 - Optional
 - Alphanumeric (1)
 - Include where applicable
- **BGC Site Series** – The site series for the given biogeoclimatic unit. It is the consideration of all ecosystems capable of producing vegetation belonging to the same plant association at climax. Examples include: 01, 04, 05.
 - Required
 - Alphanumeric (2)
 - Must correspond to the Ministry ecosystems association numbers
- **BGC Site Type** – The site type of the given site series.
 - Optional
 - Alphanumeric (2)
 - Include where applicable
- **Maximum Allowable Soil Disturbance Percentage** – The maximum percentage of the soil surface which can be disturbed in the course of harvesting or silviculture activities.
 - Required
 - Decimal (3) (1)
 - Must be greater than or equal to zero
- **Standards Regime ID** – A number which relates to a previously approved set of stocking standards contained in either a forest development plan or a forest stewardship plan.
 - Conditional
 - Non-negative integer (9)
 - Can be blank when Site Plan Exempt field is set to Y, otherwise required

Tenure: (Conditional)

Note that a single opening can have one or more tenures. This tenure information is only required if the opening has multiple tenures governing it. If this is not a multi-tenure opening then none of this needs to be submitted.

- **Licence Number** – The licence number of the opening (or of a portion of the opening) corresponding to the cutting authority.
 - Required
 - Alphanumeric (10)
- **Cutting Permit** – The cutting permit for the opening (or portion of the opening) corresponding to the licence in the cutting permit document.
 - Required
 - Alphanumeric (3)

- **Cut Block** – The approved cut block identifier for the opening or portion of the opening).
 - Required
 - Alphanumeric (10)
 - Cannot be longer than 10 characters
 - No leading zeros
 - Special characters are not recommended (e.g. -,/,_,*)
- **Is Prime Licence** – Values of Y (yes) or N (no). Set to Y if this is the primary tenure (i.e. the managing tenure) of the opening, and set to N if this is not the primary tenure of the opening.
 - Required
 - Boolean (Yes or No)

3.8.4 Additional notes for Attribute information

Tenure:

Within the opening definition, the section that refers to Tenure is linked to tenure information in FTA, so tenure information is transferred from FTA to RESULTS automatically. If an opening has multiple tenures (For example, a TL within a TFL, or private land within a TFL), the information entered would refer to the secondary licence that applies to the opening. For example, if the submission is being made for TFL 99, but the opening includes a portion of TL 800, the tenure information in this section would refer to TL 800.

It is important to note that a multi-tenure opening is not the same as a multi-part opening. A multi-tenure opening is a single opening governed by more than one tenure. A multi-part opening is a set of spatially unique areas (i.e. not connected) governed by the same tenure, which may or may not be multi-tenure.

The multi-tenure feature is not for grouping small blocks.

Opening Amalgamation:

In the RESULTS 2.x on-line application existing openings can be amalgamated into a single opening. This is to support [FPPR Section 111](#) amalgamations.

Standard Regime:

Only approved standards regime IDs can be referenced. A licensee can choose to use provincial default standards, district-wide standards (if available), or standards that have been approved specifically for the licensee. A complete list of approved standards is available in the RESULTS on-line application.

Once a standards regime ID number for an opening has been submitted to RESULTS, it is automatically linked to the approved stocking standards, and these can then be viewed on the RESULTS application or through the CRS.

Amendments

Requests for amendments to approved standards for silviculture prescriptions can be made directly through the RESULTS application, or through the ESF using an opening definition submission. See [Section 3.13](#) for more details.

Amendments or updates to spatial data (e.g. opening boundary, SU boundary) are also entered into the RESULTS database via an opening definition submission.

Woodlots and site plans

Woodlots licence holders are required prepare, submit, and have a site plan approved before a cutting permit can be issued, this is done outside of RESULTS. Once the site plan is approved by the District Manager then the cutting permit and cutblock can be created in FTA. Once the cutting permit/cutblock is created in FTA, submission to RESULTS can occur (including the opening definition and disturbance reporting).

FRPA, FPC, Openings and Standard Regimes:

Under FRPA there are provisions which allow cutblocks which were subject to the FPC to be rolled into FSPs. This allows for the use of standard regimes approved under a FSP to apply to older openings. For this situation to occur legislative conditions including (but not limited to) FRPA section 197 and or FRPA section 213 must be met.

3.8.5 Spatial Mapping Standards

Spatial information is a required component for opening definition submissions.

The Opening Definition contains two separate pieces of spatial information, the opening boundary and the SU boundary(s). There can only be one opening boundary, and there can be one or more SU boundary's depending on whether there are one or more SU's in the opening.

The opening boundary must define the location of the opening inclusive of all roads, reserves, productive, and non-productive areas.

The next required spatial component must define each SU within the opening.

This opening below consists of 1 SU and 2 WTP's that have the same attribute information. The opening definition would include the entire opening boundary, including the external WTP, and the SU boundary excludes the WTPs.



Figure 3.8.5-1: Left: Opening 1 - Clearcut with WTP's, 1 SU. Centre: Opening Boundary spatial data (red) - includes entire opening (productive, roads, WTPs, etc), and is a multipart polygon. Right: SU spatial data (blue) - Excludes WTPs and is a polygon with an internal whole.

The opening below is made up of harvested patches, and mature timber, and can be dealt with three ways for RESULTS submissions. The opening boundary can be submitted as an all-encompassing polygon, with the SU being made of all the harvested groups, or the opening boundary can be the same as the patches of SU boundary, or each patch can be its own opening in which the opening boundary equals the SU boundary. The choice of which option to use will depend on the management objectives for the area (i.e. patch cuts or group selection), and how the tenure was applied for in FTA. Here we will use the first option.



Figure 3.8.5-2: Left: Opening 2 – Group selection, with 1 SU. Centre: Opening boundary (red) includes the entire extent of all the patches in the opening. Right: SU Spatial data (blue) - Only the patches are included in the SU boundary. This is a single multipart polygon.

The opening below is a variable retention cut opening with a single SU.



Figure 3.8.5-3: Left: Opening 3 - Partial cut opening with a single SU. Centre: The opening boundary includes the entire opening. Right: The SU boundary is the same as the opening boundary in this case.

The opening below contains reserves, a seed tree SU and a clearcut SU.

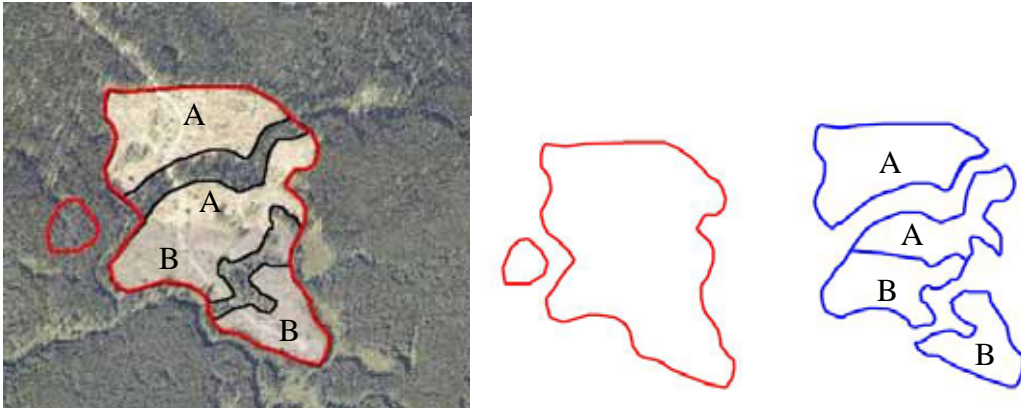


Figure 3.8.5-4: Left: Opening 4 - Opening containing multiple reserves and SU's. Centre: Opening boundary (red) contains all SU's, WTP's, roads, productive areas, etc. This is a single multipart polygon. Right: The SU boundaries (blue). Each SU (A and B) is a separate, multipart polygon.

3.8.6 What the submission will look like in RESULTS

Example of RESULTS310 – Stocking Standards screen in RESULTS:

Application Home Help

RESULTS

Search | Inbox | **Openings** | Data Submission | Admin | Event Tracking | Reports

Opening: 122 | 1000 | 1000 | 177 | Opening id: 101100 | Opening Id:

Licence No: CP: Cut Block: Timber Mark:

Exhibit A Area (ha): 21.5 Disturbance Gross Area (ha): 8.6 NAR (ha): 8.6 Forest Cover Area (ha): 21.5

RESULTS310 - Stocking Standards 1 of 2 |

SU: Net Area To Be Reforested (ha): Expiry Date:

Max Soil Disturbance: Comment:

BGC Zone/Sub/Var & Phase: Site Series/Type:

Standards ID: Standards Name: Amended:

Layer	Species H(m)		Well Spaced Trees (st/ha)				Post Spacing Density(st/ha)		Max Conif (st/ha)	Ht To Comp
	Preferred	Acceptable	Target	Min	Min Pref	Min Hz(m)	Basal Area	Min		
I - Inventory Layer	PLI, SXI, FDI	BLI	1200	700	600	1.5			5000	125%

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Figure 3.8.6-1: Shows how the standard regime is applied to a particular SU for an opening

Example of RESULTS301 – Opening Inquiry screen.

Application Home
He

RESULTS

Search
Inbox
Openings
Data Submission
Admin
Event Tracking
Reports

[Opening Inquiry](#)
[Multi-Tenure](#)
[Stocking Standards](#)
[Activities](#)
[Forest Cover](#)
[Milestones](#)
[Land Status](#)
[Attachments](#)

Org Unit:
Status: APP - Approved

Client:
Name: WEYERHAEUSER COMPANY LIMITED

Opening:
Opening Id:
Licensee Opening Id:

License No:
CP:
Timber Mark:
Cut Block:

Exhibit A Area (ha): 21.5
 Disturbance Gross Area (ha): 21.5
NAR (ha): 8.6
Forest Cover Area (ha): 21.5

RESULTS301 - Opening Inquiry [Opening Summary Report](#)

<p>Opening: <input type="text" value="921"/> <input type="text" value="088"/> <input type="text" value="0.0"/> <input type="text" value="77"/></p> <p>SP Exempt: <input type="text" value="N"/></p> <p>Opening Category: <input type="text" value="FTML - Forest Tenure - Major Licensee"/></p> <p>Tenure Type: A01 - Forest Licence</p> <p>Admin Forest Org: DKA - Kamloops Forest District</p> <p>Management Unit Type: U - TIMBER SUPPLY AREA</p> <p>Tenure Admin Org: DKA - Kamloops Forest District</p> <p>Original Approval: BWRUSSEL 1997-02-07</p> <p>Actual Disturbance Start: 1999-06-01</p> <p>Post Harvest Declared Date:</p> <p>Regeneration Declared Date:</p> <p>Free Grow Declared Date:</p>	<p>Licensee Opening Id: <input type="text"/></p> <p>Opening Status: APP</p> <p>Dist Admin Zone: <input type="text"/></p> <p>Block Status: S - Silviculture</p> <p>TSB:</p> <p>Management Unit ID: 11 Kamloops TSA</p> <p>Current Amendment:</p> <p>Regeneration Offset: 4 Regeneration Due Date:</p> <p>Free Grow Offset: 15 Free Grow Due Date:</p> <p>Regeneration Overdue: No</p> <p>Free Growing Overdue: No</p>
--	---

Previous Stand Type:

SP 1: **SP 2:** **Age Class:**

Previous Timber Type: **Stocking Class:**

Site Index: **Site Index Source:**

Maximum Allowable Permanent Access: % **Gross Area (ha):**

Last Updated: IDIR/DABONAR 2005-04-19 10:54:50 AM **Opening Comments:** No

Spatial data exists: N

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Figure 3.8.6-2: Shows how the information submitted in an opening definition is stored in the RESULTS application. Once the submission has been accepted by the ESF users can view their data in the RESULTS application. Note users have the ability to edit some fields on this screen in the RESULTS application. Additionally, the Regeneration Overdue, and Free Growing Overdue fields identify whether or not those milestones were declared by the due date – remember that users have until May 31 to submit these milestones for the previous reporting year.

3.9 Disturbance Reporting

Disturbance reporting includes information specific to the disturbance of an opening, such as the type of disturbance, type of silvicultural system, harvest start and completion dates, the tenure, and net area of the disturbance. The disturbance reporting submission includes attribute and spatial data.

3.9.1 When is it required?

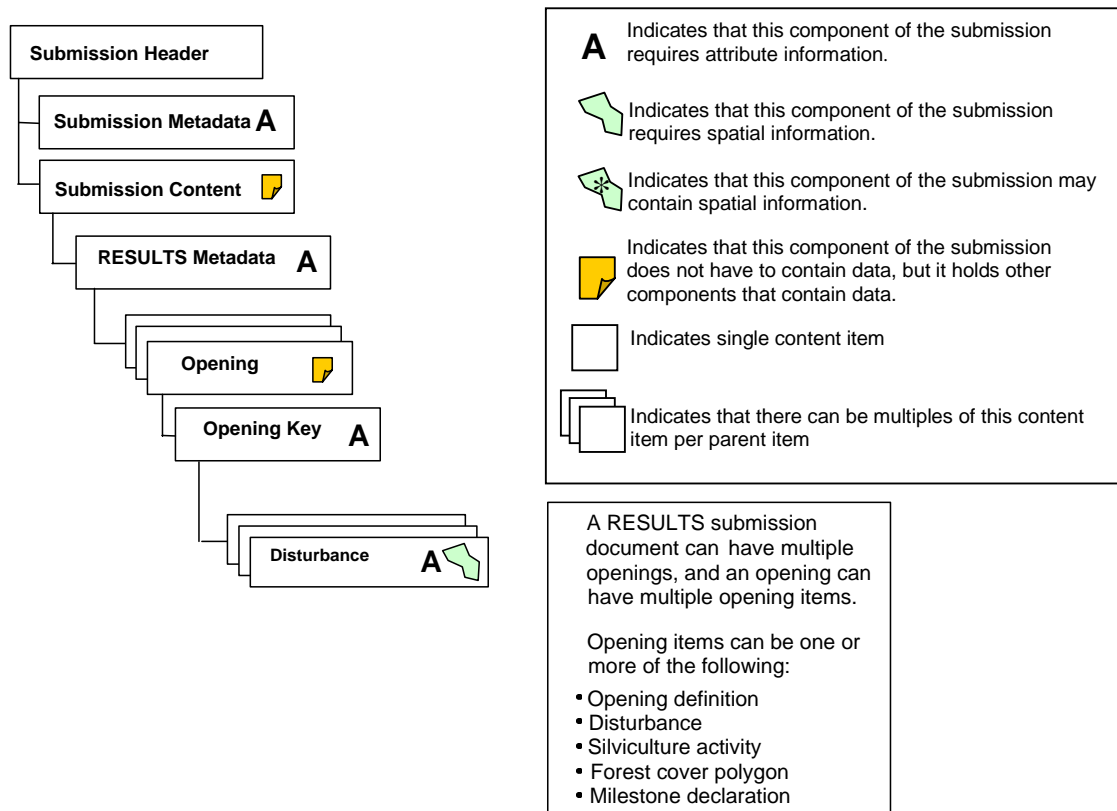
This information is required for all areas that have been disturbed (either by harvest or some other natural or non-natural event), and must be submitted by June 1 for all areas where harvesting has been completed prior to March 31 of that year. Woodlot Licence holders may be subject to alternative reporting, as they are bound to submit information in a form specified by the chief forester on or before April 30 each year.

See the *Forest Practices and Planning Regulation* and the *Timber Harvesting and Silviculture Practices Regulation* for regulations related to disturbance reporting ([Appendix B](#)).

3.9.2 Schema Layout

Figure 3.9.1 (below) shows a diagram for a disturbance report. For a given opening there can be one or more disturbance reports. Each disturbance report will include both attribute, and spatial information.

RESULTS Submission Document Format



3.9.3 Attribute Data Requirements

(Note that numbers in brackets in the following sections indicate the maximum number of characters allowed for that field)

Disturbance

- **Action** – Values of either I (Insert) or U (Update). The I is for new disturbance submissions to RESULTS, and the U is for updating disturbance reports that have previously been submitted to RESULTS.
 - Required
 - Alpha (1)
- **Licensee ID** – An optional field, which allows the licensee to provide a unique identifier to identify the disturbance.
 - Optional
 - Alphanumeric (30)
- **Licence Number** – The licence number of the opening corresponding to the cutting authority.
 - Required
 - Alphanumeric (10)
 - E.g. TFL49, A20019, W0012
- **Cutting Permit** – If applicable this is the cutting permit for the opening corresponding to the licence in the cutting permit document.
 - Conditional
 - Alphanumeric (3)
 - Include if a cutting permit exists for the opening
- **Cutblock** – The approved cutblock identifier for the opening.
 - Required
 - Alphanumeric (10)
 - Cannot be longer than 10 characters
 - No leading zeros
 - Special characters and spaces are not recommended (e.g. -,/,_,*)
 - E.g. 1002LM
- **Disturbance Code** – A code indicating the reason for the disturbance within the opening. Examples include: B, F, L, S.
 - Required
 - Alphanumeric (1)
 - Must be a valid code (see [code table section](#) for Disturbance Code list)
- **Disturbance Start Date** – The start date of the disturbance. For harvest commencement disturbances do not include road building activity
 - Required
 - Date
 - Cannot be greater than today's date

- **Disturbance Completion Date** – The date when the disturbance is completed. It is considered complete after the completion of falling and yarding and the movement of machinery off the block. Any other activity or further requirement under the cutting authority is classified as post-harvest.
 - Required
 - Date
 - Cannot be greater than today's date
 - Used to determine milestone dates for intermediate cuts, and post harvest declarations
- **Disturbance Area** – The area of the opening that was disturbed by the present activity. The Disturbance area consists of the net area to reforest (NAR), any newly created roads, other unnatural non-productive features (NP UNN – gravel pits, landings), and natural non-productive sites (NP NAT, NCC) too small to map. It does not include undisturbed areas such as wildlife tree patches or other reserves of mature or immature timber, previously existing roads, mappable natural non-productive areas (rock, swamps, etc.), or mappable non-commercial cover (NCC) identified on the site plan that are excluded from the NAR.
 - Required
 - Decimal (6) (1)
 - Includes net area to be reforested (NAR), created roads, other NPUNN (landings, gravel pits, etc), and NPNAT/NCC (rocky outcrops, small swamps etc) areas too small to map
 - It should not include existing roads, mappable NPNAT, non-commercial brush, wildlife tree patches, or other retained (i.e. undisturbed) mature or immature areas
- **Silvicultural System** – Identifies the primary category of silvicultural system used and is either even-aged or uneven-aged.
 - Required
 - Alphanumeric (5)
 - Must be a valid code (see [code table section](#) for Silviculture System Code list)
 - If more than one silvicultural system is used, complete a separate disturbance report for each system
- **Silvicultural Variant** – Further describes the spatial layout of the silvicultural system.
 - Conditional
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Silvicultural Variant Code list)
- **Silvicultural Cut Phase** – Describes the harvest entry or timing of the cut within the prescription.
 - Required
 - Alphanumeric (5)
 - Must be a valid code (see [code table section](#) for Silvicultural Cut Phase Code list)
- **Is Harvest complete** – A Yes/No indicator identifying if the harvest was completed on the cutblock. This field is important because it helps to set the status of the cutblock in FTA
 - Required
 - Boolean (Yes or No)

3.9.4 Additional notes for Attribute information

Timing:

A disturbance report **may** be submitted prior to the completion of harvesting on an opening, for example, if a licensee wanted to report the portion of an opening that was harvested in 2003, even though harvesting on the opening will not be completed until 2004. The opening definition for the opening must have been submitted previously, or at least at the same time as this disturbance submission.

Area-based Licences:

Under FRPA, area-based licenses will be required to report area harvested by calendar year, not at completion of harvest of a cutblock.

Multi-tenure openings:

Disturbances on multi-tenure openings must be reported separately for each tenure. Other submissions (i.e. silviculture activity submissions) can be made under the primary licence only. For example, if an opening located within a TFL includes a TL, then two disturbance reports are required: one disturbance report (including both attribute and spatial data) for the portion of the opening in the TFL (excluding the TL area), and one disturbance report (including both attribute and spatial data) for the portion of the opening in the TL.

FRPA 108

If a stand destroying event (e.g. Fire, windthrow) has run through an area, FRPA section 108 provides the opportunity for relief of obligation or funding. RESULTS 2.0 automates the FRPA section 108 application. Before an application can be made a disturbance report identifying the disturbance event (including spatial location), must be submitted. Enter the description of the event and the cutblock/opening in a disturbance submission showing the affected area, in addition to a forest cover submission for the opening.

Other Disturbances

Reporting disturbances other than harvesting is optional (albeit encouraged). There may be situations where it is in the best interest of a licensee to report disturbances other than harvesting (e.g. fires that impact free growing obligations).

Disturbance Code (bark beetle or fire or salvage reporting)

It is important that the disturbance code is used properly. So for areas that were logged the disturbance code is L. For areas that have been damaged by (for example) bark beetles two disturbance reports should be made. The first identifying the disturbance as a result of the beetle attack with a Disturbance Code of 'P' (for pest) (often this is done by MoFR, but may be completed by the licensee), and the second identifying the logging disturbance with a Disturbance code of 'L.' Note that the harvest activity can be identified as a salvage activity due to pests by using the appropriate Silviculture System/Variant/Cut phase code combination (e.g. CCRES//SALVP). The process would be similar for areas harvested as fire salvage.

3.9.5 Spatial Mapping Standards

For disturbance reporting the spatial information required is the disturbance area. The Disturbance area consists of the net area to reforest (NAR), any newly created roads, other unnatural non-productive features (NP UNN – gravel pits, landings), and natural non-productive sites (NP NAT, NCC) too small to map.

Disturbance area is reported by tenure. In the event that there are multiple tenures governing a block, the disturbance must be split by tenure (see [Sec 3.14.1](#) for more information).

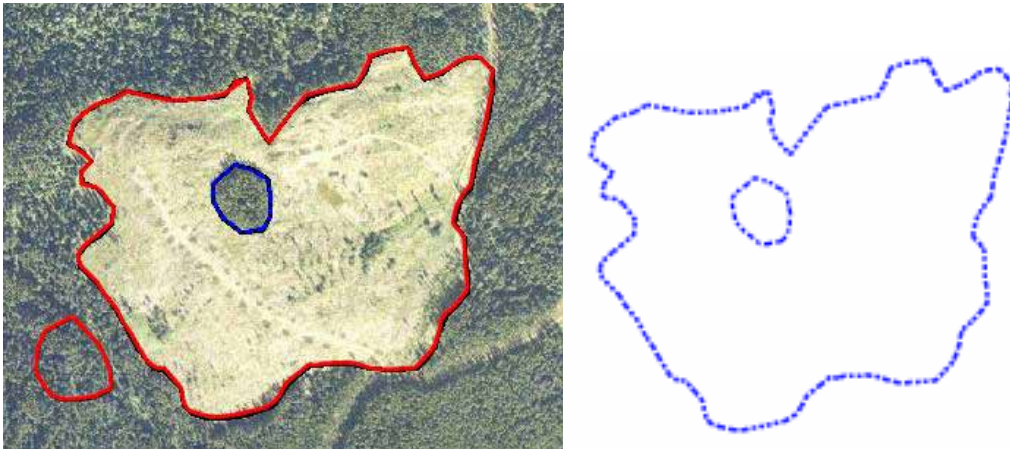


Figure 3.9.5-1: The opening (left) and spatial data (right) for the disturbed area of the opening. This is a polygon with an internal hole.



Figure 3.9.5-2: The opening (left) and the spatial data (right) for the disturbed area of the opening. This is a multipart polygon.



Figure 3.9.5-3: The opening (left) and the spatial data (right) for the disturbed area of the opening.

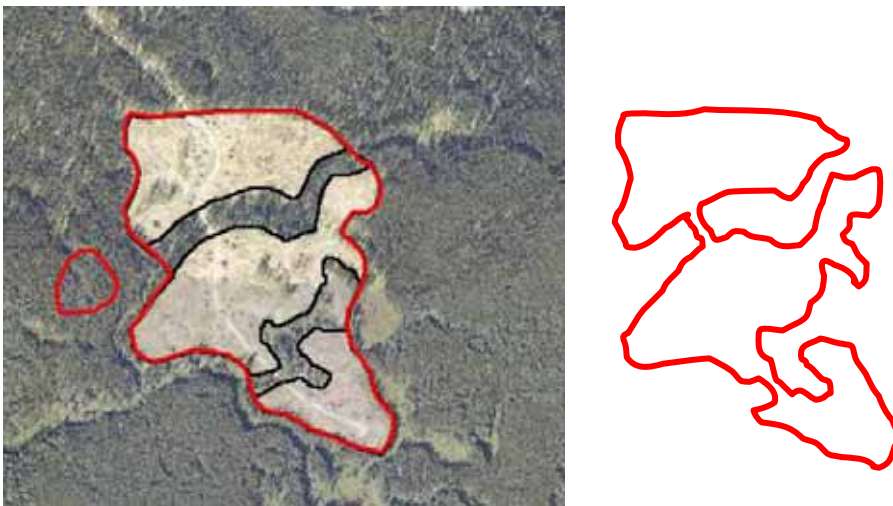


Figure 3.9.5-4: The opening (left) and the spatial data (right) for the disturbed area of the opening.

3.9.6 What the submission will look like in RESULTS

Example of RESULTS315 – Activities Screen in RESULTS: This example shows a record of the harvesting activities (and silviculture activities) for the opening.

Application Home

RESULTS

Search | Inbox | Openings | Data Submission | Admin | Event Tracking | Reports

Opening Inquiry | Multi-Tenure | Stocking Standards | Activities | Forest Cover | Milestones | Land Status | Attachments

Org Unit: DKA - Kamloops Forest District Status: APP - Approved

Client: WEYER | 11 | ... Name: WEYERHAEUSER COMPANY LIMITED

Opening: 921 | 088 | 0.0 | 77 Opening Id: 61100 | ... Licensee Opening Id: 613-14

Licence No: A18694 CP: 613 Timber Mark: EU3613 Cut Block: 14

Exhibit A Area (ha): 21.5 Disturbance Gross Area (ha): 21.5 NAR (ha): 8.6 Forest Cover Area (ha): 21.5

Go | Clear | SP Map | Map View | History | FTA

RESULTS315 - Activities

Back

7 rows returned

Rslt	ATU ID	Activity				Start Date	Completion Date	Trial Comment: No					
		Base	Tech	Method	Objective			Area	Fund	Project #	Cmt	Map	
Y	691600	DN	HV			1999-06-01	1999-07-30	21.5	IA		N	N	Details
Y	851334	SP	ME	DISC	CE		1999-11-01	4.9	IA		N	N	Details
Y	707585	SP	ME	MULCH	CE		1999-11-30	3.7	IA		N	N	Details
Y	770637	SJ	RG	PLOT	RG		2000-05-01	4.5	IA		N	N	Details
Y	770638	SJ	RG	PLOT	RG		2000-05-01	4.1	IA		N	N	Details
Y	770635	PL	PL	CTAIN	CE		2000-05-30	4.1	IA		N	N	Details
Y	770636	PL	PL	CTAIN	CE		2000-05-30	4.5	IA		N	N	Details

Back

Add Activity | Add Disturbance

Feedback | Disclaimer | Privacy | Copyright MINISTRY OF FORESTS

Figure 3.9.6-1: Showing the list of activities that have occurred on this opening. Note each activity is assigned an activity treatment unit ID (ATU ID) to uniquely identify the opening. The type of activity can be identified with the codes in the Base/Tech/Method fields. For Harvests the Base/Tech are automatically supplied by RESULTS, and are not included in the XML submission.

Example of RESULTS316 – Disturbance Results:

By clicking on the Details tab for ATU 691600 in the screen above you will get the screen below.

Application Home Help

RESULTS

[Search](#) | [Inbox](#) | [Openings](#) | [Data Submission](#) | [Admin](#) | [Event Tracking](#) | [Reports](#)

[Opening Inquiry](#) | [Multi-Tenure](#) | [Stocking Standards](#) | [Activities](#) | [Forest Cover](#) | [Milestones](#) | [Land Status](#) | [Attachments](#)

Org Unit: DKA - Kamloops Forest District **Status:** APP - Approved
Client: WEYER 11 ... **Name:** WEYERHAEUSER COMPANY LIMITED
Opening: 921 088 0.0 77 **Opening Id:** 61100 ...
Licensee Opening Id:
Licence No: A18694 **CP:** 613
Cut Block: 14 **Timber Mark:** EU3613
Exhibit A Area (ha): 21.5 **Disturbance Gross Area (ha):** 21.5
NAR (ha): 8.6 **Forest Cover Area (ha):** 4.1

RESULTS316 - Disturbance Results

ATU ID:	691600	Licensee Activity ID:	<input type="text"/>
Actual Base Activity:	DN - Denudation	Technique:	HV - Harvest
Silviculture Systems:	System: PATCT	Variant:	<input type="text"/>
Disturbance Start Date (YYYY-MM-DD):	1999-06-01	Disturbance End Date (YYYY-MM-DD):	1999-07-30
Disturbance Area(ha):	21.5	Licence Number:	A18694
Disturbance Code:	L - Logged	Cutting Permit:	613
Comments:	No	Cut Block:	14
Map:	No		

Figure 3.9.6-2: RESULTS316 page detailing the disturbance activity. Note that RESULTS accepts dates in a YYYY-MM-DD format; however, for milestone purposes the dates are only tracked to the month.

3.10 Silviculture Activity Reporting

The silviculture activity reporting submission includes information specific to silviculture treatments that have been performed on an opening, including: type of treatment, objectives, funding source, and area treated. Attribute data is required, and spatial data is optional.

3.10.1 When is it required?

This information is required for all areas with silviculture obligations that have had a silviculture treatment conducted on them, and must be submitted on or before May 31 for all areas treated up to March 31 of that year. Woodlot Licence holders may be subject to alternative reporting, as they are bound to submit information in a form specified by the chief forester on or before April 30 each year.

See the *Forest Practices and Planning Regulation* and the *Timber Harvesting and Silviculture Practices Regulation* for regulations related to disturbance reporting ([Appendix B](#)).

3.10.2 Schema Layout

The figure below shows a diagram of the silviculture activity reporting schema. For a given opening there can be one or more silviculture activity reports. Each report is only required to include attribute information. Spatial information is optional.

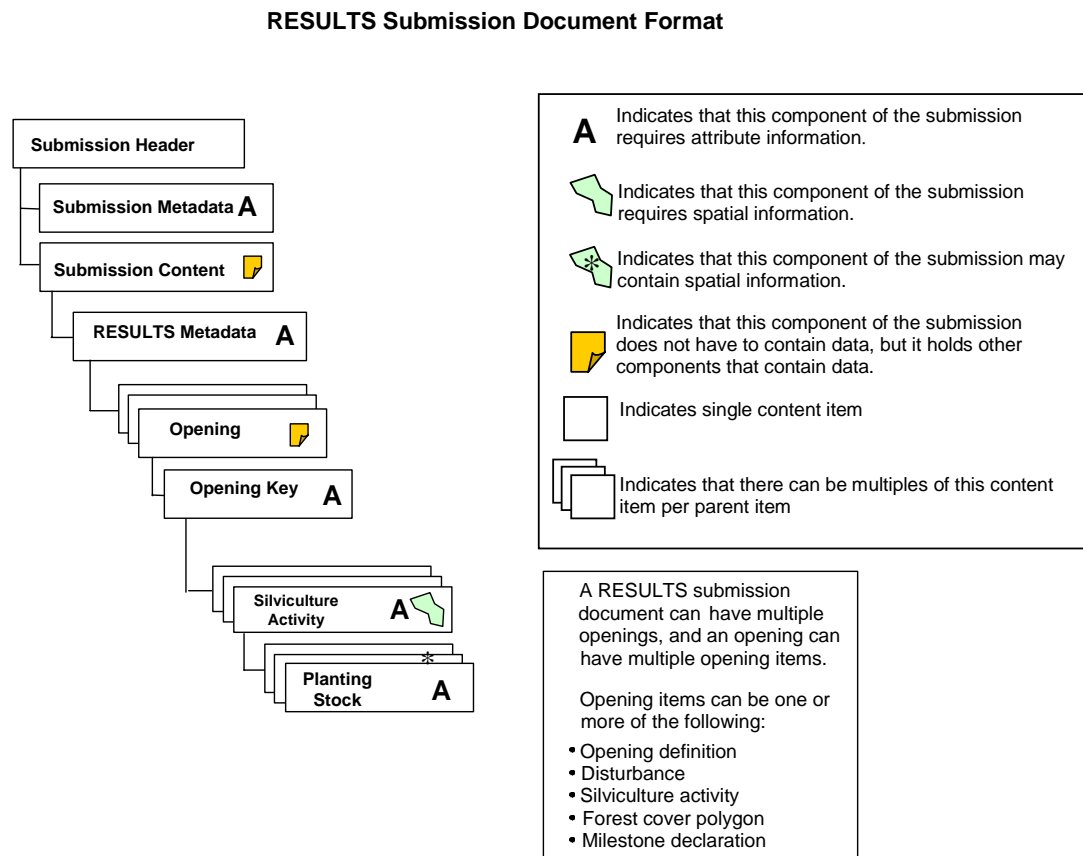


Figure 3.10.2-1: Stylized diagram showing the format (i.e. schema) of submission components.

3.10.3 Attribute Data Requirements

(Note that numbers in brackets in the following sections indicate the maximum number of characters allowed for that field)

Silviculture Activity

- **Action** – Values of either I (Insert) or U (Update). The I is for new submissions to RESULTS, and the U is for updating silviculture activity reports that have previously been submitted to RESULTS.
 - Required
 - Alpha (1)
- **Activity Base** – Identifies a primary category of silviculture treatment or activity
 - Conditional (Required if submitting a silviculture activity report)
 - Alphanumeric (2)
 - Must be a valid code (see [code table section](#) for Activity Base Code list)
 - Must be a valid code combination
- **Activity Technique** – Identifies a general technique for accomplishing silviculture work and may be a descriptor of the base activity.
 - Conditional (depends on Activity Base)
 - Alphanumeric (2)
 - Must be a valid code (see [code table section](#) for Activity Technique Code list)
 - Must be a valid code combination
- **Activity Method** – Identifies a specific method for accomplishing silviculture work and is a subdivision of technique. Methods describe a physical process for accomplishing work.
 - Conditional (depends on Activity Base/Technique)
 - Alphanumeric (5)
 - Must be a valid code (see [code table section](#) for Activity Method Code list)
 - Must be a valid code combination
- **Activity Cost** – The cost of the activity.
 - Optional
 - Nonnegative integer (8)
- **Objective 1** – Objectives are the reasons for doing a silviculture treatment or activity. Objectives are tied to a base activity. Up to three objectives per activity are allowed.
 - Conditional
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Objective Code list)
- **Objective 2** – Objectives are the reasons for doing a silviculture treatment or activity. Objectives are tied to a base activity. Up to three objectives per activity are allowed.
 - Optional
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Objective Code list)
- **Objective 3** – Objectives are the reasons for doing a silviculture treatment or activity. Objectives are tied to a base activity. Up to three objectives per activity are allowed.
 - Optional
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Objective Code list)

- **Activity Date** – The date the activity took place.
 - Required
 - Date
 - If the activity is planned, it is the planned start date of the activity, if the activity is complete it is the actual completion date.
- **Is Actual Date** – Values of Yes/No. Used for indicating whether that is the actual date of the activity or not (i.e. planned). Planned activities are important for openings where a FRPA 108 application may be made, ministry managed NRFL's, and FIA activities.
 - Required
 - Boolean (Yes or No)
- **Licensee ID** – An optional field, which allows the licensee to provide a unique identifier to identify the opening.
 - Optional
 - Alphanumeric (30)
- **Funding Source** – The funding source for the silviculture treatment or activity. Examples include IA – industry appraisal, FTL – forests for tomorrow licensee administrated, FIL – FIA Licensee.
 - Required
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Funding Source Code list)
- **Funding Project** – Field for entering the project number associated with this activity. The project number is associated with the Forest Investment Account (FIA), in which the crown is responsible for the land.
 - Conditional (Required if the project is funded by FIA)
 - Alphanumeric (10)
- **Net Area Treated** – The area that underwent treatment by the activity.
 - Required
 - Decimal (6) (1)

Planting Stock (conditional)

If the activity base is set to PL (i.e. the activity being submitted is a planting activity) then the planting stock fields must be filled out. If the activity being submitted is not a planting activity then this information is not required.

- **Seedlot-Veglot** – The unique number (key) assigned to a quantity of seed of a particular species and quality from a given location collected at a given time.
 - Required
 - Alphanumeric (5)
 - Seedlot-Veglot must exist in SPAR
 - Seedlot-Veglot must be entered exactly as it exists in SPAR
- **Species** – The species of the trees being planted as per the seedlot-veglot.
 - Required
 - Species Code Type
 - Must be a valid code (see [code table section](#) for Species Code list)

- **Number Planted** – The number of stems of the given seedlot planted for the given activity.
 - Required
 - Non-negative integer (7)
- **Excess of Transfer Limit** – The number of trees planted in excess of the seedling transfer limits described in the "Chief Forester's Standards for Seed Use."
 - Conditional
 - Non-negative integer (9)

3.10.4 Additional notes for Attribute information

Actual date indicator

If the actual date indicator is set to Y, then the Activity date is the activity Date, if the actual date indicator is set to N then the actual date is a planned date.

Activity Treatment Units

For each opening, treatments are reported by silviculture activity treatment units. An opening can contain many silviculture activity treatment units, which can overlap. Each unit is reported as a separate silviculture activity within an opening.

FRPA – Annual Silviculture Accomplishments

Under FRPA, there are provisions to allow for annual silviculture activity reporting rather than reporting silviculture activities by opening. This can be done in the RESULTS on-line application, and not through the ESF. Note that you cannot report annual activity roll-ups for harvesting activities, planting activities, or FIA funded activities. These must be reported on an opening by opening basis.

Chief Forester's Standards for Seed Use

Chief Foresters Guidelines – For FRPA/FSP Openings, in addition to the total number of trees planted for a seedlot / vegetative lot, licensees will have to report the total number of trees planted outside the transfer limits described in the "Chief Forester's Standards for Seed Use." Note: this applies to both licensees and BCTS - although the reporting requirements (roll-ups) are different.

Treatments versus Surveys

Silviculture surveys are not considered to be a silviculture treatment, and therefore there is no requirement to report them. Submissions of silviculture surveys will still be accepted if the licensee chooses to submit them.

Silviculture treatments include:

- (a) site preparation for the purposes of reforestation
- (b) planting trees
- (c) brushing, including grazing for the purposes of brushing
- (d) juvenile spacing
- (e) fertilization
- (f) pruning
- (g) sanitation treatments associated with a silviculture treatment and
- (h) pest management treatments, other than sanitation treatments

3.10.5 Spatial Mapping Standards

Spatial data is not required for silviculture activity treatment unit reporting. It is optional and will be accepted. Spatial data for strata (i.e. a subunit of a standard unit) could be included.

3.10.6 What the submission will look like in RESULTS

Example of RESULTS315 – Activities Screen in RESULTS: In the example below you can see the silviculture activities (and harvesting activities) for the opening. In this case the part of the opening was disc trenched in December 1999, and another part was mulched later in the same month. Those site prep activities were followed by regeneration surveys, and planting activities.

The screenshot shows the RESULTS application interface. At the top, there is a navigation bar with 'RESULTS' and several menu items: Search, Inbox, Openings, Data Submission, Admin, Event Tracking, and Reports. Below this is a secondary navigation bar with links for Opening Inquiry, Multi-Tenure, Stocking Standards, Activities (selected), Forest Cover, Milestones, Land Status, and Attachments.

The main content area contains a form for opening details. Fields include:

- Org Unit: DKA - Kamloops Forest District
- Status: APP - Approved
- Client: WEYER (with a dropdown menu showing '11')
- Name: WEYERHAEUSER COMPANY LIMITED
- Opening: 921 (with sub-fields 088, 0.0, 77)
- Opening Id: 61100
- Licensee Opening Id: 613-14
- License No: A18694
- CP: 613
- Timber Mark: EU3613
- Cut Block: 14
- Exhibit A Area (ha): 21.5
- Disturbance Gross Area (ha): 21.5
- NAR (ha): 8.6
- Forest Cover Area (ha): 21.5

 At the bottom of the form are buttons for 'Go', 'Clear', 'SP Map', 'Map View', 'History', and 'FTA'.

Below the form, the section is titled 'RESULTS315 - Activities'. There is a 'Back' button and a note '7 rows returned'. A table displays the following data:

Rslt	ATU ID	Activity					Start Date	Completion Date	Trial Comment: No		Area	Fund	Project #	Cmt	Map	Details
		Base	Tech	Method	Objective	Objective										
Y	691600	DN	HV			1999-06-01	1999-07-30			21.5	IA		N	N	Details	
Y	851334	SP	ME	DISC	CE		1999-11-01			4.9	IA		N	N	Details	
Y	707585	SP	ME	MULCH	CE		1999-11-30			3.7	IA		N	N	Details	
Y	770637	SU	RG	PLOT	RG		2000-05-01			4.5	IA		N	N	Details	
Y	770638	SU	RG	PLOT	RG		2000-05-01			4.1	IA		N	N	Details	
Y	770635	PL	PL	CTAIN	CE		2000-05-30			4.1	IA		N	N	Details	
Y	770636	PL	PL	CTAIN	CE		2000-05-30			4.5	IA		N	N	Details	

At the bottom of the table, there is a 'Back' button and two buttons: 'Add Activity' and 'Add Disturbance'. The footer of the application includes links for Feedback, Disclaimer, Privacy, and Copyright, and the text 'MINISTRY OF FORESTS'.

Figure 3.10.6-1: Summary of activities for an opening in the RESULTS application.

Example of RESULTS317 – Maintain Activities Results screen in RESULTS for a planting activity:

Application Home
He

RESULTS

Search
Inbox
Openings
Data Submission
Admin
Event Tracking
Reports

Opening Inquiry
Multi-Tenure
Stocking Standards
Activities
Forest Cover
Milestones
Land Status
Attachments

Org Unit: DKA - Kamloops Forest District **Status:** APP - Approved

Client: WEYER | 11 **Name:** WEYERHAEUSER COMPANY LIMITED

Opening: 921 | 088 | 0.0 | 77 **Opening Id:** 61100 **Licensee Opening Id:**

License No: A18694 **CP:** 613 **Timber Mark:** EU3613 **Cut Block:** 14

Exhibit A Area (ha): 21.5 **Disturbance Gross Area (ha):** 21.5 **NAR (ha):** 8.6 **Forest Cover Area (ha):** 21.5

RESULTS317 - Maintain Activity Results

ATU ID: 770636

Activity Base: PL - Planting

Objectives: CE

Completion Date (YYYY-MM-DD): 2000-05-30

Treated Amount: 4.5 HA

Project #:

Comments: No

Map: No

Licensee Activity ID:

Technique: PL - Planting

Planned Date (YYYY-MM-DD): 2000-05-01

Total Planted: 6884

Method: CTAIN - Container

Funding Source: IA - Industrial Appraisal

Projected Costs (\$):

2 rows returned

Species	Number Planted	Number Beyond Transfer Limit	Lot		
<input type="text" value="PLI - LODGEPOLE PINE (INTERIOR)"/>	4819		30858	<input type="button" value="Update Item"/>	<input type="button" value="Delete Item"/>
<input type="text" value="FDI - DOUGLAS-FIR (INTERIOR)"/>	2065		34874	<input type="button" value="Update Item"/>	<input type="button" value="Delete Item"/>

Feedback • Disclaimer • Privacy • Copyright
MINISTRY OF FORESTS

Figure 3.10.6-2: By clicking on the Details tab for ATU ID 770636 (as seen in Figure 3.10.6-1) you will get the screen above, which provides details on a specific activity.

Example of RESULTS317 – Maintain Activity Results screen in RESULTS for a survey activity:

Application Home
He

RESULTS

Search
Inbox
Openings
Data Submission
Admin
Event Tracking
Reports

Opening Inquiry
Multi-Tenure
Stocking Standards
Activities
Forest Cover
Milestones
Land Status
Attachments

Org Unit: DKA - Kamloops Forest District
Status: APP - Approved

Client: WEYER 11
Name: WEYERHAEUSER COMPANY LIMITED

Opening: 921 088 0.0 77
Opening Id: 61100
Licensee Opening Id:

License No: A18694
CP: 613
Timber Mark: EU3613
Cut Block: 14

Exhibit A Area (ha): 21.5
 Disturbance Gross Area (ha): 21.5
NAR (ha): 8.6
Forest Cover Area (ha): 21.5

Go
Clear
SP Map
Map View
History
FTA

RESULTS317 - Maintain Activity Results

Back

ATU ID: 770637
 Licensee Activity ID:

Activity Base: SU - Surveys
Technique: RG - Regen/Stocking
Method: PLOT - Plots

Objectives: RG
Funding Source: IA - Industrial Appraisal

Completion Date (YYYY-MM-DD): 2000-05-01
Planned Date (YYYY-MM-DD): 2000-05-01
Projected Costs (\$):

Treated Amount: 4.5 HA
 Total Planted: 0

Project #:

Comments: No

Map: No

Save
Delete

Back

Feedback
Disclaimer
Privacy
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Figure 3.10.6-3: By clicking on the Details tab for ATU ID 770637 (as seen in Figure 3.10.6-1) you will get the screen above, which provides details for a specific activity.

3.11 Forest Cover Polygon Submissions

The forest cover polygon submission includes attribute information, such as: area, the number of stems, tree species, tree species percent, damage agents, non-mappable components, in addition to the spatial location and shape of the polygon. This information is used for inventory updates and timber supply reviews amongst other things. Forest cover polygon submissions include both attribute and spatial data.

3.11.1 When is it required?

This information must be submitted on or before May 31 for:

- all cutblocks that have been completely harvested up to March 31 of that year
- areas that have met regeneration date requirements up to March 31 of that year
- areas that have met free growing requirements up to March 31 of that year
- Where there are partial cutting stocking requirements that do not have regeneration obligations, or the harvesting is limited to commercial thinning, harvesting of poles, sanitation treatments and other intermediate cuttings that do not have regeneration obligations, forest cover data must be submitted between 12 and 24 months after the completion of harvest (note: an opening definition, and a disturbance report are still required by June 1 for the previous reporting year)

Woodlot Licence holders may be subject to alternative reporting, as they are bound to submit information in a form specified by the chief forester on or before April 30 each year.

These deadlines are as per the *Forest Planning and Practices Registration* sec 86 and the *Timber Harvesting and Silviculture Practices Regulation* sec 45, 46 (see [Appendix B](#)).

3.11.2 Schema Layout

The figure below shows a diagram of the forest cover polygon reporting schema. For a given opening there can be one or more forest cover polygon reports. Each forest cover polygon report can have a non-mappable component, and one or more layers. Each layer can have one or more tree species, and one or more damage agents. Each report requires both attribute and spatial information.

RESULTS Submission Document Format

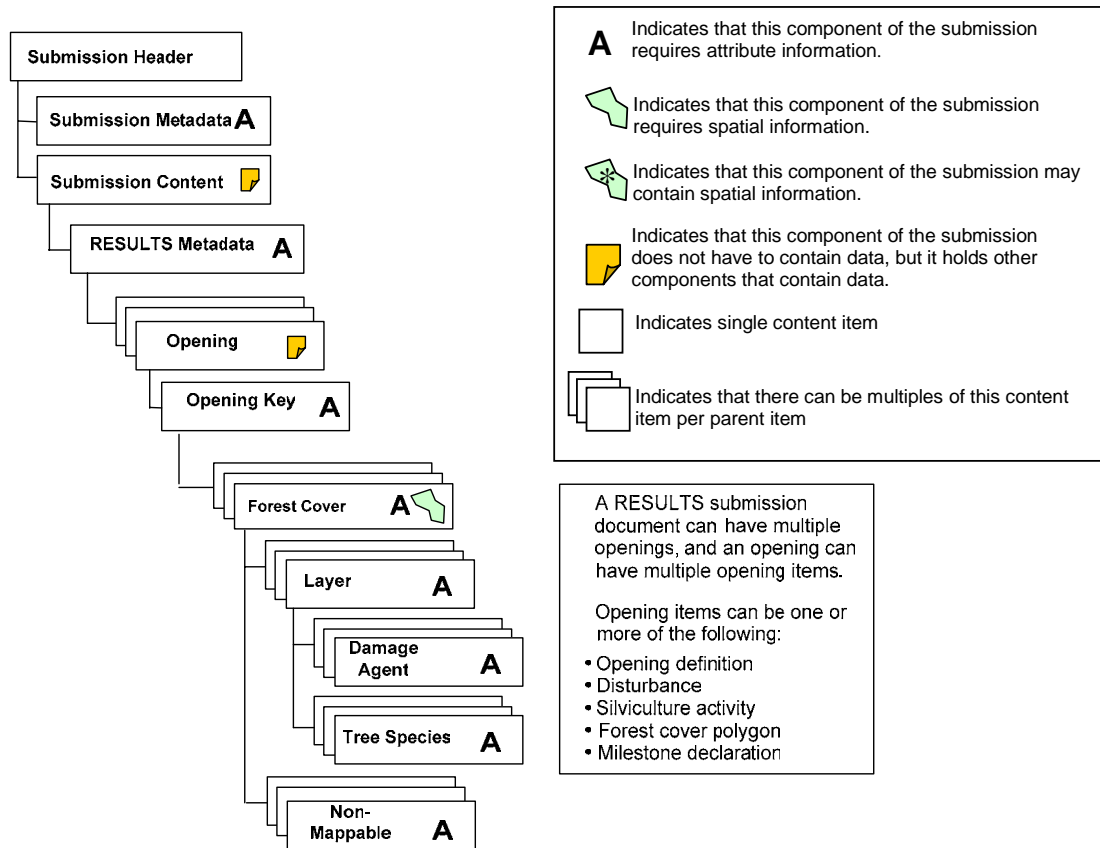


Figure 3.11.2-1: Stylized diagram showing the format (i.e. schema) of submission components.

3.11.3 Attribute Data Requirements

(Note that numbers in brackets in the following sections indicate the maximum number of characters allowed for that field)

Forest Cover Polygon

- **Licensee ID** – A unique identifier for the forest cover polygon assigned by the licensee. Examples include: 1, 2, 3, or X, Y, Z. Note in the RESULTS application this field is referred to as Polygon ID.
 - Required
 - Alphanumeric (1)
 - No duplicates permitted
- **Area** – The area of the forest cover polygon.
 - Required
 - Decimal (6) (1)

- **Reference Year** – The year that the forest cover polygon data was collected.
 - Required
 - Gyear (4)
 - Typically it is the year of the survey
 - Must be less than or equal to the declared date when submitting with a declaration
 - For roads and other NP areas, the reference year may be different than the survey date, and will reflect the date that the road was measured or the block area was determined
- **Re-entry Year** – The expected year when the next harvest entry will occur in this opening.
 - Optional
 - Gyear (4)
 - Only applies to partial cutting blocks
- **Stocking Status** – Stocking is an indication of growing space occupancy relative to a pre-established standard. Status refers to whether the site has met those standards. Stocking status is determined by milestone and/or forest cover information. Stocking status is most often described as not satisfactorily restocked, immature or mature.
 - Required
 - Alphanumeric 3
 - Must be a valid code (see [code table section](#) for Stocking Status Code list)
 - Must be AF, IMM, MAT, NC, or NSR for uneven aged stands
 - If stocking status is set to NSR, then stocking type must be entered and all other fields are optional
- **Stocking Type** – Refers to a more detailed classification of the stocking status. Examples include: natural, artificial, plantable.
 - Required
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Stocking Type Code list)
- **Reserve Type** - If trees are left for one or more rotations and for reasons other than regeneration purposes, they are classified as reserves. Record the type of reserve.
 - Conditional
 - Alphanumeric (1)
 - Must be a valid code (see [code table section](#) for Reserve Type Code list)
- **Reserve Objective** – Identifies the objective of the reserve.
 - Conditional
 - Alphanumeric (3)
 - Required if there is a reserve present in the forest cover polygon
- **Standard Unit ID** – The standard unit associated with the forest cover polygon.
 - Required
 - Alphanumeric (1)
 - All forest cover polygons must be associated with a SU

- **Site Index** – This is a measure of the productivity of forestland. Enter the projected average height in metres of the leading species of the forest cover label at 50 years after the stand achieves breast height (1.3m).
 - Required
 - Non-negative integer (2)
- **Site Index Source** – The source of the site index. It describes the source, or origin, of the site index. Examples include: C – site index from site index curve, H – site index from stand before harvest.
 - Required
 - Alphanumeric (1)
 - Must use the most accurate method of collecting site index. See selecting a method to estimate site index on the FS 660
 - Must be a valid code (see [code table section](#) for Site Index Source Code list)
- **Tree Cover Pattern** – This refers to the spatial arrangement of residual patches of overstorey (layer 1) within an SU that are too small to be mapped. It is a forest health indicator.
 - Conditional
 - Alphanumeric (1)
 - Must be a valid code (see [code table section](#) for Tree Cover Pattern Code list)
 - Only applies to retained stems
 - Mandatory if silviculture system = retention

Layer

- **Layer type** – A code that uniquely identifies each layer within the Standard Unit. Each layer is normally characterized as a distinct canopy containing a common forest cover structure with stems of similar ages and heights.
 - Required
 - Alphanumeric (2)
 - Must be a valid code (see [code table section](#) for Layer Type Code list)
- **Crown Closure** – The stand condition resulting in the crowns of trees touching and effectively blocking sunlight from reaching the forest floor.
 - Required
 - Non-negative integer (3)
 - See [FS 660 Card](#) for more details
- **Total Stems** – the total number of stems per hectare within the forest cover polygon.
 - Conditional
 - Non-negative integer (6)
 - Must be present when Stocking Status is set to IMM except where reserve type is O, R, U, or W
 - Must be blank for a silviculture layer
 - When timber is harvested from a reserve, stocking requirements must be specified in the silviculture prescription/site plan or forest development plan/forest stewardship plan. The stocking requirements may specify maximum, target or minimum density levels. Total stems is optional when no retention density levels are specified in the SP, or FDP/FSP

- **Total Well Spaced** – Stem density for silviculture layer disregarding the M-value. Trees must be healthy, of a preferred or acceptable species and well-spaced using the minimum inter-tree distance in the standards regime or SP. Refers to the total well-spaced stems per hectare.
 - Conditional
 - Non-negative integer (6)
 - Must be present when stocking status is set to IMM except where reserves type is O, R, U, or W, or when harvesting is an intermediate cut.
 - Mandatory if species present in silviculture layer.
- **Well Spaced** – Stem density for silviculture layer using the M-value. Trees must be healthy, of a preferred or acceptable species and well-spaced using the minimum inter-tree distance in the standards regime or SP. Refers to the well-spaced stems per hectare.
 - Conditional
 - Non-negative integer (6)
 - Must be present when stocking status is set to IMM except where reserves type is O, R, U, or W, or when harvesting is an intermediate cut.
 - Mandatory if species present in silviculture layer.
 - When timber is harvested from a reserve, stocking requirements must be specified in the silviculture prescription/site plan or forest development plan/forest stewardship plan. The stocking requirements may specify maximum, target or minimum density levels. Optional when no retention density levels are specified in the SP, or FDP/FSP.
- **Free Growing** – Free growing stem density for the silviculture layer. Free growing trees must be healthy, of a preferred or acceptable species, well-spaced, free from inhibiting brush, and meet or exceed the required minimum height (if applicable). Refers to the number of free growing stems per hectare for the stand.
 - Conditional
 - Non-negative integer (6)
 - Must be present and greater than or equal to the minimum stocking standard if standards unit is declared free growing
 - When timber is harvested from a reserve, stocking requirements must be specified in the silviculture prescription/site plan or forest development plan/forest stewardship plan. The stocking requirements may specify target and minimum free growing stems/ha. Free growing stems/ha is optional when no well-spaced stems/ha are specified in the SP or FDP/FSP.

- **Basal Area** – Refers to the cumulative cross-sectional area of trees as measured at breast height. For inventory labels this field refers to all stems > 12.5 cm dbh, and for silviculture labels it to basal area for crop tree stems >12.5 cm dbh. Licensees are encouraged to submit both the total residual basal area (in the inventory layer), and the crop tree residual basal area (in the silviculture layer).
 - Conditional
 - Non-negative integer (3)
 - Not required for even-aged stands except if prescribed as an even-aged partial cut or intermediate cut
 - Basal area for Layer 2, 3, 4 area are blank
 - Required for commercial thinning or intermediate cuts basal area where basal area is used to assess post harvest stocking requirements
 - If present, must be greater than 0

Tree Species

- **Species** – Tree species within the forest cover polygon.
 - Required
 - Must be a valid code (see [code table section](#) for Species Code list)
 - At least one species must be entered when stocking status is IMM, MAT or RES, unless RESERVE Type is anything other than “N” or blank
 - For inventory label, enter the code describing the leading commercial species – the species with the highest percent composition (e.g. gross volume (L1 and L2) or in very young stands the relative number of stems per hectare).
 - For silviculture label, enter the code describing the preferred or acceptable well-spaced species
 - Duplicate species not allowed on the same label or layer
 - If first species is present, then height and age information is required
 - If second species is present, and if information is collected during a free growing survey, then height and age is required
 - Species may also be entered to describe brush species in cases where stocking status is NCBR
- **Species Percent** – Estimate of the tree species percent within the forest cover polygon.
 - Required
 - Non-negative integer (3)
 - Species percent must be greater than 0 when species are present
 - Sum of all species in a label must equal 100

- **Average Age** – The average age of the tree species expressed in years.
 - Conditional
 - Non-negative integer (3)
 - Mandatory when stocking status is IMM or MAT, unless reserve type is anything other than “N” or black
 - If NSR and tree species is entered, average age is required
 - For stocking surveys
 - Inventory Label: enter average age of dominant and co-dominant trees of leading species.
 - Silviculture Label: enter average age of all preferred or acceptable well-spaces sample trees
 - For free growing surveys
 - Inventory Label: enter average age of dominant and co-dominant trees for the leading and second leading species
 - Silviculture Label: Enter average age of all preferred or acceptable free growing sample trees.
- **Average Height** – the average height of the tree species expressed in metres.
 - Conditional
 - Decimal (3) (1)
 - Leading species height must be present when stocking status is IMM of MAT, except where reserve type is O, R, U, or W.
 - IF NSR and Tree species entered, then leading species height must be entered
 - For un-even aged stands the layer 4 heights must be less than 1.3m
 - For stocking surveys
 - Inventory Label: enter average height of dominant and co-dominant species
 - Silviculture Label: enter average height of all preferred or acceptable well-spaces sample trees
 - For free growing surveys
 - Inventory Label: enter average height of dominant and co-dominant trees for the leading and second leading species
 - Silviculture Label: Enter average height of all preferred or acceptable free growing sample trees.

Damage Agent

- **Damage Agent** – Indicates the insect, disease, or other factor that has caused tree damage that exceeds the free growing damage criteria within the forest cover polygon.
 - Required
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Damage Agent Code list)
- **Incidence Percent** – The percent of host species within the forest cover polygon impacted by the damage agent with damage that exceeds the free growing criteria.
 - Optional
 - Non-negative integer (3)

- **Incidence Area** – The area of the forest cover polygon that has trees with damage exceeding the free growing damage criteria.
 - Optional
 - Decimal (6) (1)

Non-mappable Component

- **Non-mappable Component ID** – A unique identifier for the non-mappable component defined by the licensee. These are areas that are too small or dispersed to map, but have areas that need to be accounted for (i.e. dispersed rock or swampland that should be taken out of the productive forest area – NAR – but is too small and dispersed to map).
 - Required
 - Alphanumeric (3)
- **Area** – The area of the non-mappable component in hectares.
 - Required
 - Decimal (6) (1)
- **Stocking Status** - Stocking is an indication of growing space occupancy relative to a pre-established standard. Status refers to whether the site has met those standards. Stocking status is most often described as satisfactorily restocked, not satisfactorily restocked, free growing, or not free growing
 - Required
 - Alphanumeric 3
 - Must be a valid code (see [code table section](#) for Stocking Status Code list)
 - Must be AF, IMM, MAT, NC, or NSR for uneven aged stands
 - If stocking status is set to NSR, then stocking type must be entered and all other fields are optional
- **Stocking Type** – Refers to whether the stocking status is natural or artificial.
 - Required
 - Alphanumeric (3)
 - Must be a valid code (see [code table section](#) for Stocking Type Code list)

3.11.4 Additional notes for Attribute information

All forest cover polygons for an opening must be included on each submission.

Damage Agent

There is a new optional entry related to pest damage: “incidence area”. This refers to the number of hectares affected by a particular damage agent.

Non-mappable Component

Another new optional entry is the “non-mappable component”. This has been added as a way to track non-mappable non-productive areas within a forest cover polygon, such as small dispersed rock outcrops or brush patches. A stocking status code and area are required. This area is included in the area reported for the forest cover polygon (not netted out of the polygon area).

Number of forest cover polygons per opening

An opening can contain up to 300 forest cover polygons.

Forest cover polygons and SUs

Where an opening has not been stratified into units smaller than standards units, then the forest cover polygons must be the same as the standards units that have been identified for the opening. Standards units can also be broken down further into strata (see [Stocking and Free Growing Survey Procedure Manual](#)).

Forest cover polygons must align with SU boundaries. If a forest cover type crosses an SU boundary, then the forest cover polygon must be broken into two polygons.

Roads, reserves and other mappable features

Separate forest cover polygons must be created for roads, reserves and other mappable features. These polygons must be associated with an SU or the submission will fail. Currently even road and reserve polygons must be associated with an SU. The polygons created for these features must also align with the SU boundaries.

Silviculture and Inventory labels

The silviculture component should be entered only when the inventory and silviculture labels are significantly different (e.g. greater than 20% difference in leading species composition or greater than 3m difference in height). An additional reference for this section is the [Stocking and Free Growing Survey Procedure Manual](#).

Rationale for Polygon Creation within an SU

Within a standards unit, new polygons must also be created or stratified in the following situations (note this may not be an exhaustive list of rationale for forest cover polygon creation within an SU):

- If there is more than a 20% difference in leading species composition. For example PI8Sx2 must be separated from PI5Sx5;
- If there is a switch in the leading species. For example Fdc8Cw2 must be separated from Cw6Fdc4;
- If the species composition changes from a mixed species stand to a pure stand. For example: Fdc10 must be separated from Fdc6Hw2Cw2;
- If there is a strata that is below the required minimum stocking standard at the regeneration or free growing time frames;
- If there is a strata that has more than 10,000 stems per hectare;
- If the age of the leading inventory species in adjacent strata have a 20 year age difference or more;
- If the height of the leading inventory species in adjacent strata have a difference of 10 meters or more;
- If the site index based on the leading inventory species in adjacent strata have a change of more than 3 metres;
- NP areas with different stocking status / stocking type combinations in the RESULTS database must be separate forest cover polygons.

Minimum Polygon Size

While current technologies provides the ability to create small, accurate polygons, the costs associated with maintaining these polygons can be quite high. Therefore, the recommended minimum polygon size for RESULTS submissions is 0.25ha. The RESULTS database can accommodate smaller polygons if there is an appropriate business need to do so (e.g. for a research trial).

See [Section 6](#) Precision Standards for Forest Inventory and Forest Cover Data Submissions to the Ministry of Forests for details for additional details on minimum polygon size.

Precision Standards

See [Section 6](#) Precision Standards for Forest Inventory and Forest Cover Data Submissions to the Ministry of Forests for details.

Recommendations for Reserves

Reserves are defined as forested patches or individual trees retained during harvesting, or other forestry operations, to provide habitat, scenic, biodiversity and other values. These areas or trees are usually retained for one or more rotations.

Reserves that do not have harvest entries can be mapped and reported, but there are no silviculture responsibilities associated with these areas. Reserves greater than 0.25 hectares must be mapped, this includes fully external reserves.

Reserves with modifications (for example tree removal to address safety or other management objectives) become part of the NAR and are, therefore, described as a, or part of a, standards unit. Reserve areas within a SU may or may not have regeneration objectives but are subject to legislated survey and reporting requirements.

Licensees completing Forest Cover submissions should use the following recommendations for tracking reserves:

For reserves 0.1 ha or greater with no harvesting activities (not part of NAR):

Note that reserves from 0.1 ha to 0.24 ha must be tracked, but do not need to be mapped. They can be tracked as a non-mappable component of the stratum.

Each patch can be tracked as a stratum with the following information:

- Mandatory information is:
 - Stratum identifier (for each reserve area)
 - Stratum area
 - Stocking Status/Type (typically MAT/NAT, or IMM/NAT)
 - Reserve type code (G, M, O, R, U, W, or V)
 - Reserve objective code (RMA, WTR, O)
 - Reference year
- Conditional information (i.e. required depending on the information above) is:
 - Species and %
 - Height
 - Age
 - Density
 - Crown closure

- Site index
- Basal Area

For reserves with harvest entries (part of NAR):

For reserves where there has been harvesting, there will be standards associated with the harvested area. Record: SU ID, reserve area, species composition (species by percent), height and age of leading species, site index, tree cover pattern, density and crown closure. Also record the basal area if this information is available.

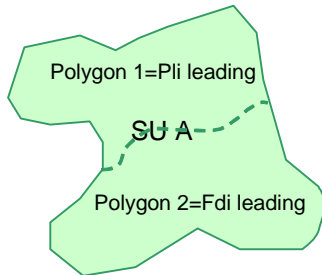
Non-productive Area Requirements

Stratum, area, stocking status, stocking type, and reference year must be completed for non-productive areas. If species is filled out then age and height must also be filled in. The remaining data fields are optional. Note that once reported at harvest, the reference year will be the same at regen delay, and free growing if there is no change.

Non productive areas that meet the minimum polygon size must be mapped

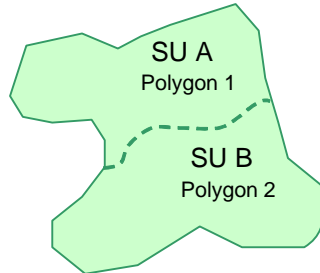
3.11.5 Spatial Mapping Standards

Example 1



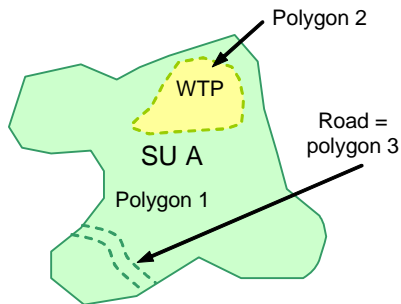
1 Standards Unit, subdivided into 2 polygons based on leading species.

Example 2



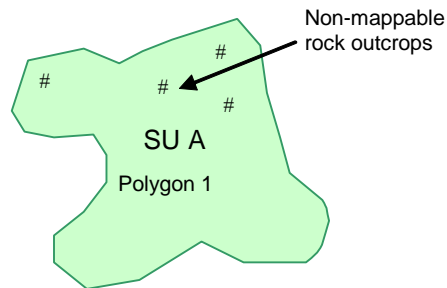
2 Standards Units, so must have at least 2 polygons.

Example 3



1 Standards Unit, WTP, Road (NP). Each is a separate forest cover polygon. Polygon 1 is a multipart polygon (separated by road polygon). Polygon 1, 2, and 3 are all associated with SU A for tracking purposes. Note the road can also be a non-mappable component of the polygon 1, in which case there would only be 2 polygons (PROD+NP and WTP).

Example 4



1 Standards Unit with one polygon. The area of non-mappable rock outcrops is reported as part of the polygon area.

Figure 3.11.5-1: Examples of SU to forest cover relationships.

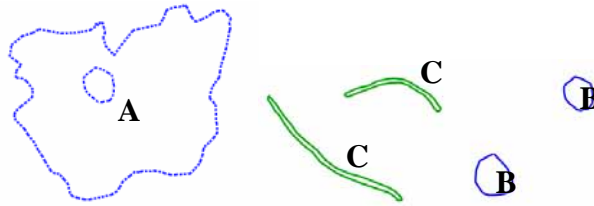
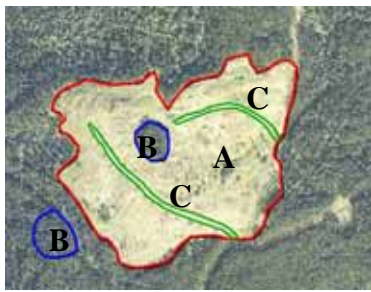


Figure 3.11.5-2: This opening is made up of 3 forest cover polygons (far left). The first is the productive area (NSRNAT) (left centre). It is a polygon with an internal hole. The next polygon is a multipart polygon for the roads (NPUNN) (right centre), and the final polygon is a multipart polygon for the reserves (MATNAT) (far right).

Polygon	Description	Associated SU	Area (ha)
A	Clearcut	1	40
B	WTP	1	5.0
C	Roads	1	2.0

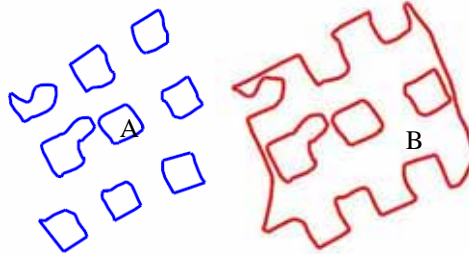


Figure 3.11.5-3: This opening is a series of patch cuts with the surrounding reserve area (left). Two forest cover polygons are included. One multipart polygon for the harvested patches (NSRNAT) (centre), and one polygon with internal holes for the unharvested reserves (MATNAT) (right).

Polygon	Description	Associated SU	Area (ha)
A	Patch cuts	1	18.0
B	Reserved area	1	28.0

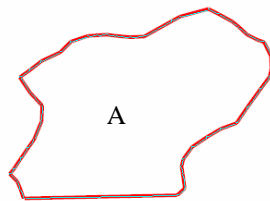


Figure 3.11.5-4: This variable retention opening (left) is a single forest cover polygon (right). Note that half the road is inside of the block boundary, and is being tracked as a non-mappable component of the polygon.

Polygon	Non-Mappable	Description	Associated SU	Area
A		Variable Retention	1	41.5
	RD	Road		0.5

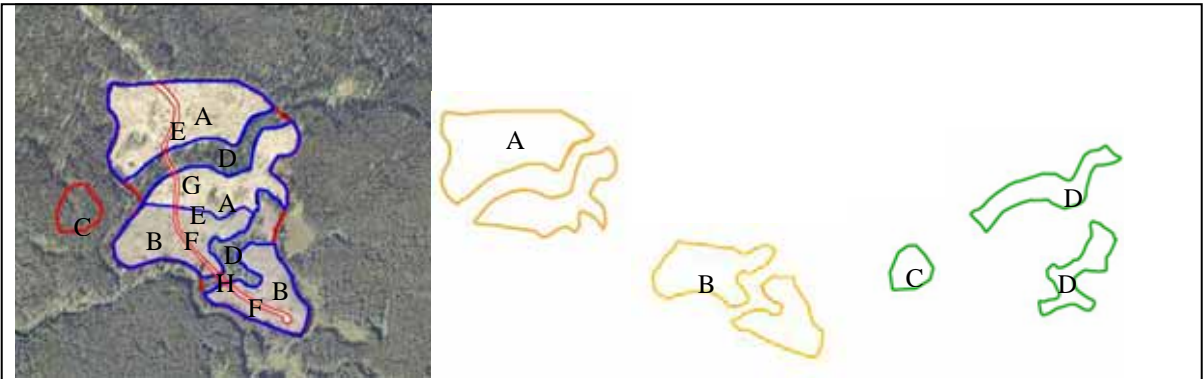


Figure 3.11.5-5: This opening (left) is broken into multiple forest cover polygons based on SUs, roads, and WTPs. The polygon is a multipart polygon representing SU A (left centre). The second picture is a multipart polygon representing SU B (centre). The third polygon represents the single exterior WTP (it is significantly different from the interior WTPs so it can not be grouped) (centre right). The fourth polygon represents the interior WTPs (right).

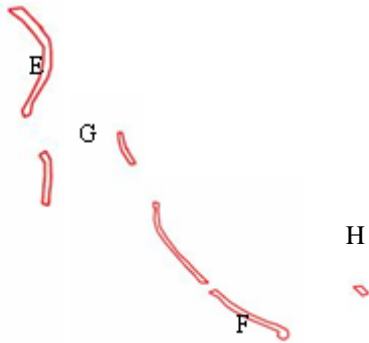


Figure 3.11.5-6: The roads are broken into 4 separate polygons so that they align with the SU boundaries.

Polygon	Description	Associated SU	Area
A	Seed tree	A	19.0
B	Clearcut	B	21.0
C	WTP 1	A	4.0
D	WTP 2 & 3	B	6.0
E	Roads for SU 1	A	1.2
F	Roads for SU 2	B	1.0
G	Roads for WTP	A	0.5
H	Roads for WTP	B	0.3

In the example above the roads could have been treated as non-mappable components:

Polygon	Non-mappable Component	Description	Associated SU	Area (net area)	Total polygon area
A		Seed tree	A	19.0	20.2
	A	Roads	A	1.2	
B		Clearcut	B	22.0	23.0
	A	Roads	B	1.0	
C		WTP 1	A	4.0	4.5
	A	Roads	A	0.5	
D		WTP 2 & 3	B	6.0	6.3
	A	Roads	B	0.3	

3.11.6 What the submission will look like in RESULTS

Example of RESULTS320 Forest Cover Summary screen for an Opening in RESULTS:

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 [Multi-Tenure](#) |
 [Stocking Standards](#) |
 [Activities](#) |
 Forest Cover |
 [Milestones](#) |
 [Land Status](#) |
 [Attachments](#)

Org Unit: DPG - Prince George Forest District **Status:** APP - Approved
Client: PASLBR 00 **Name:** THE PAS LUMBER COMPANY LTD
Opening: 93J 055 0.0 61 **Opening Id:** 61122 **Licensee Opening Id:** _____
Licence No: A18171 **CP:** 248 **Cut Block:** 84 **Timber Mark:** EJ7248
Exhibit A Area (ha): 62.1 **Disturbance Gross Area (ha):** 62.3 **NAR (ha):** 53.8 **Forest Cover Area (ha):** 62.3

RESULTS320 - Forest Cover Summary

[New Forest Cover](#) [Forest Cover History](#)

Last Action Date: 2005-07-04 **Comments:** No [Forest Cover Map](#) **8 rows returned**

SU	Polygon ID	Non-Mapped Area	Layer	Polygon Area		Stocking		Reference Year	Species Code			Stems/ha				Details	
				Gross	Net	Stat	Type					Total	Total Well Spaced	Well Spaced	Free Growing		
A	A			1.8	1.8	NP	UNN	1998									
B	B		I	6.7	6.7	MAT	NAT	1998	PLI	SW	BL	241	241	241	0		
C	C		I	1.8	1.8	IMM	ART	1999	FDI			1537	1537	1537	0		
A	D		I	3.1	3.1	IMM	ART	1999	PLI			1537	1537	1537	0		
B	E		I	5.7	5.7	IMM	ART	1999	PLI			1537	1537	1537	0		
C	F		I	23.4	23.4	IMM	ART	1999	PLI			1537	1537	1537	0		
B	G		I	12.4	12.4	IMM	ART	1999	SX			1537	1537	1537	0		
C	H		I	7.4	7.4	IMM	ART	1999	SX			1537	1537	1537	0		

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Figure 3.11.6-1: All the forest cover polygons for an opening are stored on this page. Note that each polygon is associated with an SU.

In RESULTS, several areas are tracked:

Exhibit A Area is from FTA (from the harvest application)

Disturbance Area is from RESULTS disturbance reporting

NAR is from RESULTS opening definition and is the sum of the NAR from all SU's

Forest Cover Area is the sum of areas of RESULTS forest cover polygons, including NP polygons, which equals the gross area of the opening

Example of RESULTS321 – Forest Cover Detail screen in RESULTS:

By clicking on the Details tab for the S Layer of Polygon ID A1, in the screen above you will get the screen below. Much of this information can be edited in the RESULTS on-line application by clicking on the Edit hyperlink in the upper right hand side of the screen. Below the Edit hyperlink there is a series of VCR buttons which can be used to navigate to other forest cover polygons within the opening.

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Opening Inquiry
Multi-Tenure
Stocking Standards
Activities
Forest Cover
Milestones
Land Status
Attachments

Org Unit: DPG - Prince George Forest District **Status:** APP - Approved

Client: PASLBR 00 **Name:** THE PAS LUMBER COMPANY LTD

Opening: 93J 055 0.0 61 **Opening Id:** 61122 **Licensee Opening Id:**

Licence No: A18171 **CP:** 248 **Cut Block:** 84 **Timber Mark:** EJ7248

Exhibit A Area (ha): 62.1 **Disturbance Gross Area (ha):** 62.3 **NAR (ha):** 53.8 **Forest Cover Area (ha):** 62.3

RESULTS321 - Forest Cover Detail

[Edit](#)

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Last Action Date: 2005-07-04	Comments: No	Polygon : F
SU: C	Forest Cover ID: 1004989	
Gross Area(ha): 23.4	Net Area(ha): 23.4	
Reference Year: 1999	Reserve Type: U - Uniform	Reserve Objective: E - SI from Biogeoclimatic Ecosystem Classification
Site Class:	Site Index: 15	Site Index Source: E - SI from Biogeoclimatic Ecosystem Classification
Tree Cover Pattern:		Re-Entry Year:
Stocking Status: IMM - Immature		Stocking Type: ART - Artificial

Non Mapped Area

Id	Area	Status	Type

Layer I Inventory Layer

Species	%	Average Age	Average Height
1 PLI - LODGEPOLE PINE (INTERIOR)	100	1	.2

Crown Closure: 0	Basal Area: 0	Well Spaced: 1537	Free Growing: 0
Stems/ha Total: 1537	Total Well Spaced: 1537		

Damage Agent	%	Area

Figure 3.11.6-2: Detailed view of a forest cover polygon.

Draft Silviculture Information Submission Guidebook

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3.12 Milestone Declaration Submissions

The milestone declaration submission can be used by licensees to officially declare that they have met a particular milestone. The three milestones that may be declared are: post-harvest, regeneration delay, and free growing. By declaring that a milestone has been met the licensees are, before further examination by the ministry, deemed to have met the obligation and the onus shifts to the government to disprove the declaration. A declaration only includes attribute data.

3.12.1 When is it required?

- Milestone declarations are always optional. It is at the licensee's discretion as to whether or not they make a milestone declaration ([Forest and Range Practices Act sec 107](#)).
- If declared, milestone declarations should be made prior to the expiry of the regeneration date and free growing date.

Woodlot Licence holders may be subject to alternative reporting, as they are bound to submit information in a form specified by the chief forester on or before April 30 each year.

3.12.2 Schema Layout

Figure 3.12.2-1 (below) shows a diagram of the milestone declaration reporting schema. For a given opening there can be one or more milestone declaration reports. Milestone declaration reports require only attribute information.

RESULTS Submission Document Format

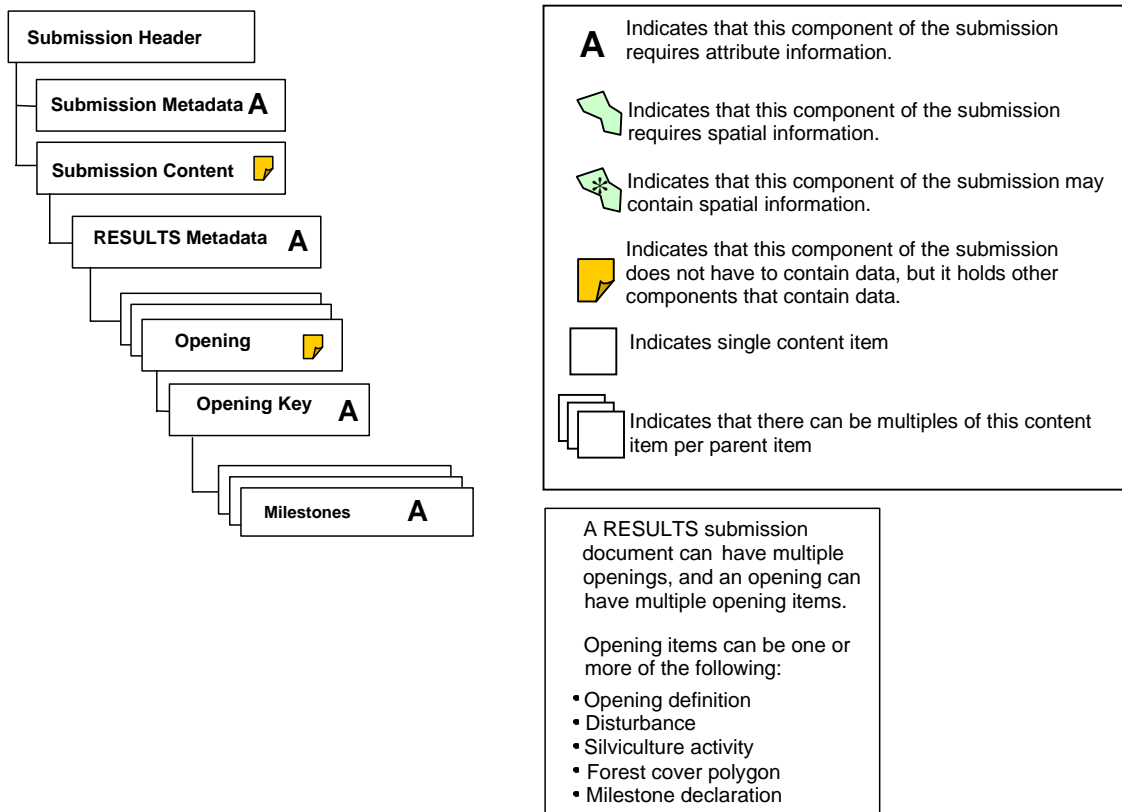


Figure 3.12.2-1: Stylized diagram showing the format (i.e. schema) of submission components.

3.12.3 Attribute Data Requirements

(Note that numbers in brackets in the following sections indicate the maximum number of characters allowed for that field)

Milestone Declaration

- **Standard Unit ID** – the standard unit to which the milestone declaration relates.
 - Required
 - Alphanumeric (1)
- **Declaration Date** – The date the declaration is being made.
 - Required
 - Date
 - May not be the same as the submission date
 - If submitting a free growing declaration for an opening with early and late free growing offsets, the declaration date should be equal to, or between the early and late free growing dates

- **Milestone Type** – The type of Milestone being declared. Examples include: FG – free growing, RG – regeneration delay, PH – Post Harvest, NR – No Regeneration.
 - Required
 - Alphanumeric (2)
- **Comment** – Field for licensee to input any related comments.
 - Optional
 - Alphanumeric (2000)

3.12.4 Additional notes for Attribute information

Declaration Rationale

Although Milestone declarations are optional, Licensees may still want to declare milestones for the following reasons:

- In the event that silviculture obligations have been met (such as the obligation to develop a free growing stand) earlier than the latest legislated date, declaring a milestone will allow for the liability to meet those obligations to be removed from the licensee. In the event the licensee chooses not to declare that a milestone, then the licensee continues to be liable for those obligations.
- Allow the multiblock approach outlined in FPPR section 16(3)(d) and 45(2) to function properly. There is a requirement to have declarations in place so that the multiblock approach could function and to track declared blocks properly and avoid compliance and enforcement issues.
- Allow for multiblock performance (as in THSPR section 49(3) and 49(4) to be considered and evaluated when considering allowing an area to be below the prescribed minimum standards.

Electronic signature

The milestone declaration is submitted using a BCeID, which is considered an electronic signature, and declaration letters are not submitted. Refer to [Section 2.5](#) for information on accountability for electronic submissions.

There is an option for a non-RPF to submit declarations. In this instance the official signed and sealed declaration must be kept on file by the licensee. It may be reasonable that the non-RPF making the submission should include a copy of the official declaration as an attachment. Take note that this person must be authorized as outlined in [Section 2.5](#).

Declarations by SU

Milestone declarations for an opening are made for each SU, as per the information submitted for the opening definition. The SU must have the same letter (or number) as in the opening definition.

Milestone due dates

Milestone due dates are tracked in RESULTS based on the information submitted with the opening definition. The commencement date for obligations is initiated by disturbance reporting (harvest start date usually, but it is the harvest end date if there are no regeneration obligations).

Milestone declarations and silviculture obligations

While making milestone declarations is optional the requirement to establish a stand that meets the prescribed standards is a legislated requirement as is the requirement to submit a forest cover update either when the standards are met, or at the date of the milestone declaration.

Milestone declarations and forest cover updates

In the event a milestone is declared, a forest cover update is required at the time of the declaration.

Milestone declarations and RESULTS on-line application

Declarations can be made either as a submission to RESULTS through the ESF, or as an update within the RESULTS on-line application.

Post harvest milestone declaration

The intent of the post harvest milestone declaration is to be used for partial cutting, or other intermediate cuts such as commercial thinning, harvesting poles, or sanitization.

3.12.5 What the submission will look like in RESULTS

Example of RESULTS325 – Milestones screen for an Opening in RESULTS (note that the milestone due dates are displayed as the number of years from the start of harvest. In addition, the due dates are 0 for post harvest as there is no requirement to submit post harvest milestones for openings other than partial cuts or other intermediate cuts):

Application Home Help

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Opening Inquiry | Multi-Tenure | Stocking Standards | Activities | Forest Cover | Milestones | Land Status | Attachments

Org Unit: Status: APP - Approved

Client: Name: WEYERHAEUSER COMPANY LIMITED

Opening: Opening Id: Licensee Opening Id:

License No: CP: Cut Block: Timber Mark:

Exhibit A Area (ha): 21.5 Disturbance Gross Area (ha): 8.6 NAR (ha): 8.6 Forest Cover Area (ha): 21.5

RESULTS325 - Milestones

Compliance Date Indicator: HARVEST 6 rows returned

SU	SU Area	Declaration Type	Due Early	Due Late	Declared			Submission Date
					Date (YYYY-MM-DD)	User ID	Cmt	
1	4.1	Post Harvest	0	0			No	<input type="button" value="Update"/> <input type="button" value="Undeclare"/>
1	4.1	Regeneration	1999-06	2003-06			No	<input type="button" value="Update"/> <input type="button" value="Undeclare"/>
1	4.1	Free Growing	2008-06	2014-06			No	<input type="button" value="Update"/> <input type="button" value="Undeclare"/>
2	4.5	Post Harvest	0	0			No	<input type="button" value="Update"/> <input type="button" value="Undeclare"/>
2	4.5	Regeneration	1999-06	2003-06			No	<input type="button" value="Update"/> <input type="button" value="Undeclare"/>
2	4.5	Free Growing	2008-06	2014-06			No	<input type="button" value="Update"/> <input type="button" value="Undeclare"/>

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3.13 Amendments, Approved Variations and Corrections

Modifications to stocking standards information held by the RESULTS database can be triggered by amendments to silviculture prescriptions, applying an approved variation to a standard regime for a site plan, or correcting incorrect silviculture prescription information so that the electronic copy matches the approved paper copy. Depending on the task at hand, and the licensee's ESF submission capabilities these modifications can be completed either through an ESF submission, or on-line using the RESULTS application.

As of June 1, 2005 all submissions of silviculture prescription amendments, applications of approved variations, and corrections of incorrect information must be made electronically either through the ESF or on-line using the RESULTS Application. Paper submissions will not be accepted. Any submission that is accepted electronically and approved (if required) electronically will be considered the official document. There will be no approved signed and sealed paper hardcopy returned to licensee.

The first step when attempting to correct or amend data in the RESULTS is to confirm that you are the appropriate person to be making such changes (see Section 3.13.8 below for more details).

The second step when attempting to correct or amend data in RESULTS is to determine the type of plan you are working with. Is it a silviculture prescription, or is it a site plan? Silviculture prescriptions and site plans are governed by different sets of legislation and regulations, and this impacts the process through which changes are made.

The next step when completing modifications to the data in RESULTS is to identify exactly what you are trying to modify, and what type of modification are you trying to make.

- Are you trying to modify the information held in RESULTS so that it matches the approved paper version? Correction.
- Are you trying to implement a variation that is captured within a stocking standard that is approved in your FSP/FDP? Approved variation.
- Are you making amendments to the area of the openings? Does the amendment meet the prescribed requirements for not needing approval from the district manager or their designate? Amendment that does not require approval.
- Are you trying to amend a silviculture prescription stocking standard? Amendment that requires approval.

Table 3.13-1 displays a matrix that helps to display what types of modifications are available depending on what you are trying to accomplish.

The final step is to choose the appropriate mechanism for making the correction/amendment. There are two possible mechanisms: a direct entry of the modification/amendment in the RESULTS on-line application, and a submission to the RESULTS database through the ESF. The mechanism of choice will depend on numerous factors including the type/extent of the modification/amendment being undertaken, the ESF submission capabilities of the licensee, and the business process within the licensee's operation.

Table 3.13-1 RESULTS Correction/Approved Variation/Minor Amendment/Major Amendment Matrix

Plan Type	Action	SU changes that can be made	Comments	Related Legislation	Spatial data
Silviculture Prescription	Correction	Add SUs, Delete SUs, Update information	<ul style="list-style-type: none"> Updateable fields are all pieces of a stocking standard, with the following exceptions: <ul style="list-style-type: none"> Can not change offset if FG, RG, or Post Harvest related milestone is declared (eg regen delay can be modified if a regen declaration has been submitted) 	OSPR s7.1 and s7.3 FRPA s197(8)	Where applicable PDF maps accepted, GML spatial data preferred (Note GML is only option for openings with approval dates after December 1, 2003)
	Minor Amend.	Update information	<ul style="list-style-type: none"> Updateable fields are NAR, BEC, SU identifier 		
	Major Amend.	Add SUs, Delete SUs, Update Information	<ul style="list-style-type: none"> Updateable fields are all pieces of a stocking standard with the following exceptions: <ul style="list-style-type: none"> Can not change offset if FG, RG, or Post Harvest milestone is declared If a standard regime is assigned to one SU then all SU's within the opening must be assigned a standard regime Silv prescription can be incorporated into FSP via major amendment. Must then: <ul style="list-style-type: none"> Assign a standards id SU BEC must match assigned Standards ID BEC 		
Site Plan	Approved Variation	Add SUs, Delete SUs, Update information	<ul style="list-style-type: none"> Updateable fields are all pieces of a stocking standard with the following exceptions: <ul style="list-style-type: none"> Can not change offset if FG, RG, or Post Harvest the related milestone is declared Standard regime ID can not be changed 	FPPR s29 FRPA s197(8)	Where applicable GML spatial data only (Note PDF maps are acceptable for openings with approval dates before December 1, 2003)
	Minor Amend.	Update information	<ul style="list-style-type: none"> Updateable fields are: SU identifier, SU NAR, standard regime ID <ul style="list-style-type: none"> Can not change any of the pieces of the stocking standard or the BEC 		
	Major Amend.	N/A	<ul style="list-style-type: none"> Major Amendments (i.e. amendments that require approval from the district manager or their designate) do not apply to openings managed with site plans 		

3.13.1 Amendments

Amendments to silviculture prescriptions

The first step in completing an amendment (either through the ESF or by using the RESULTS on-line Application), is to determine whether or not the amendment in question requires approval.

Amendments that do not require approval from the District Manager or their designate are referred to as minor amendments. In general, minor amendments are those amendments which may change the size of an opening, but do not change the district manager-approved stocking standards that apply to the standard units in the opening, or where there is no physical change on the ground (e.g. area update as a result of a more accurate traverse). More specific details are provided in the [Operational and Site Planning Regulation section 7.1](#), as well as the [Forest Practices Code of British Columbia Act section 42.1](#). To complete a minor amendment via the ESF an opening definition submission must be created, including spatial data if required (see section on spatial data below), and the action code must be 'M' for minor amendment. To complete a minor amendment via the RESULTS on-line application, select the Minor Amendment button from the RESULTS310 – Stocking Standards Page, make the necessary changes, and submit the amendment. The amendment will be applied as soon as the application is submitted, as this submission is not approved by the district manager or their designate.

Openings that are subject to minor amendments will remain in the Approved status throughout the amendment process.

Amendments that do not meet the prescribed requirements require approval from the District Manager or their designate. These amendments are for openings that are managed with silviculture prescriptions. More specific details are provided in the [OSPR section 7.2](#), [FPPR section 29](#), and [FRPA section 197\(8\)](#). To complete a major amendment via the ESF an opening definition submission must be created, including spatial data if required (see section on spatial data below), and the action code must be 'A' for major amendment. To complete a major amendment via the RESULTS on-line application, select the Major Amendment button from the RESULTS310 – Stocking Standards Page, make the necessary changes and submit the amendment. This submission will be identified as an amendment requiring district manager (or their designate) approval (or rejection), and the application will go the MoFR's RESULTS InBox for processing.

Openings that are subject to a major amendment will see changes in the status of the opening throughout the process. In the RESULTS on-line application the opening will change from the approved (APP) status to the amended (AMD) status once the pop-up confirmation box has been accepted. The opening will remain in the AMD status until the proposed amendment has been deleted (status goes back to APP), or the proposed amendment is submitted (SUB status) to MoFR. Submissions of proposed amendments to RESULTS via the ESF will have a SUB status once they are submitted. From then on the opening status will be the same for amendments that are submitted via the ESF or entered directly in the RESULTS application. The opening will remain in this SUB state until MoFR either approves the proposed amendment (status changes to APP), or rejects the proposed amendment at which time the opening changes back to the AMD status. This allows the licensee to address any issues in the mandatory rejection note.

For information on including spatial data with amendments see Section 3.13.4.

Amendments to site plans

Amendments to site plans do not require approval from the District Manager or their designate; therefore, these amendments are also referred to as minor amendments.

Amendments to site plans may include applying a different standard regime to a standard unit as well as are those amendments which meet the prescribed requirements outlined in the regulations (see [OSPR 7.1](#)).

To complete an amendment to a site plan via the ESF an opening definition submission must be created, including spatial data if required (see section on spatial data below), and the action code must be 'M' for minor amendment. To complete an amendment to a site plan via the RESULTS on-line application, select the Minor Amendment button from the RESULTS310 – Stocking Standards Page, make the necessary changes, and submit the amendment. The amendment will be applied as soon as the application is submitted, as this submission is not approved by the district manager or their designate.

Openings that are subject to minor amendments will remain in the Approved status throughout the amendment process.

3.13.2 Approved Variations for Site Plans

Forest stewardship plans and/or transition forest development plans contain numerous standard regimes (i.e. stocking standards for particular ecosystems). FSP/FDPs may also contain variations of those standard regimes to address particular circumstances. For example: a particular standard regime may have Fdi and Pli as the only preferred or acceptable species for a given ecosystem association, but there may be a variation that is contained within the approved FSP/FDP which allows for the use of Py on xeric, south facing slopes; similarly, a particular standard regime may specify a minimum inter-tree distance of 2m, but there may be a variation contained within the approved FSP/FDP which allows for a 1.5m minimum inter-tree distance in areas of high cattle usage.

These variations are approved under the FSP/FDP, and as such, there is no need to have them re-approved by the district manager. It is up to the RPF preparing/amending the site plan to apply the appropriate standard regimes, and any approved variations of those regimes.

To apply an approved variation users have two options. The first is to include the approved variation in the XML/GML document that is submitted through the ESF to RESULTS. To submit an approved variation via the ESF an opening definition submission must be created, including spatial data if required (see section on spatial data below), and the action code must be 'V' for approved variation.

The second method to apply approved variations involves logging on the RESULTS on-line application, navigating to the opening on which the approved variation is to be applied, and clicking on the Approved Variation button on the RESULTS310-Stocking Standards screen. This will allow the user to modify the standard regime to reflect the approved variation.

In either case the opening will remain in Approved (APP) status throughout.

3.13.3 Corrections for Silviculture Prescriptions only

When there are errors in the information held within the RESULTS database (particularly for stocking standards) these errors can be corrected by licensee or ministry staff so that the RESULTS database matches the approved paper copies. In this case the stocking standards information held by the RESULTS database is changed so that it reflects the approved silviculture prescription or site plan. Although any corrective actions will be tracked by the system, there is no approval required to complete these corrections. Similarly to applying approved variations there are two methods to make corrections to the RESULTS database.

The first method to make corrections to the RESULTS database is to use an action code of 'U' (for Update) in an XML/GML submission to RESULTS via the ESF.

The second method to make corrections to the RESULTS database is to logon to the RESULTS on-line application, navigate to the opening in question, and click on the Corrections button on the RESULTS310-Stocking Standards screen. This will allow you to make any corrections to the stocking standards for that opening so that RESULTS matches the approved paper version.

The opening status will remain in the Approved (APP) status throughout.

3.13.4 Spatial Data

For any changes to spatial data (either as stand alone changes to the spatial data, or as a component of other corrections or amendments) there may be one or two mechanisms to submit the spatial data depending on the approval date of the opening.

For openings with an approval date of December 1, 2003 or later, the only mechanism for submitting spatial data is through the ESF. The submission of spatial data through the ESF is also the preferred method of spatial data submissions for openings with an approval date before December 1, 2003.

For openings with an approval date prior to December 1, 2003 users have two options for the submission of spatial data amendments. The first (and most preferred by MoFR), is via the ESF, the second is to attach a pdf copy of the map (or other format acceptable to MoFR) to the opening by using the attachments tab in the RESULTS on-line application.

3.13.5 Completing Amendments, Approved Variations and Corrections using the RESULT on-line Application

Once you have confirmed that you are the appropriate person, confirmed it's a site plan or silviculture prescription opening, confirmed the type of modification/amendment you need to complete, and chosen the RESULTS on-line application as the mechanism to carry out this action, you can refer to Figure 13.1.5-1 for the steps involved.

In general you will navigate to the stocking standards page (RESULTS310) for the opening on which you need to make modifications or amendments. At the bottom of that screen you will select the action you are trying to carry out (Correction, Approved Variation, Minor Amendment, or Major Amendment. Then you will make the modifications (corrections, approved variations or amendment) as required. Saving these modifications and returning to the RESULTS310 screen will either signal an end to the process or will allow you to submit the major amendment to MoFR.

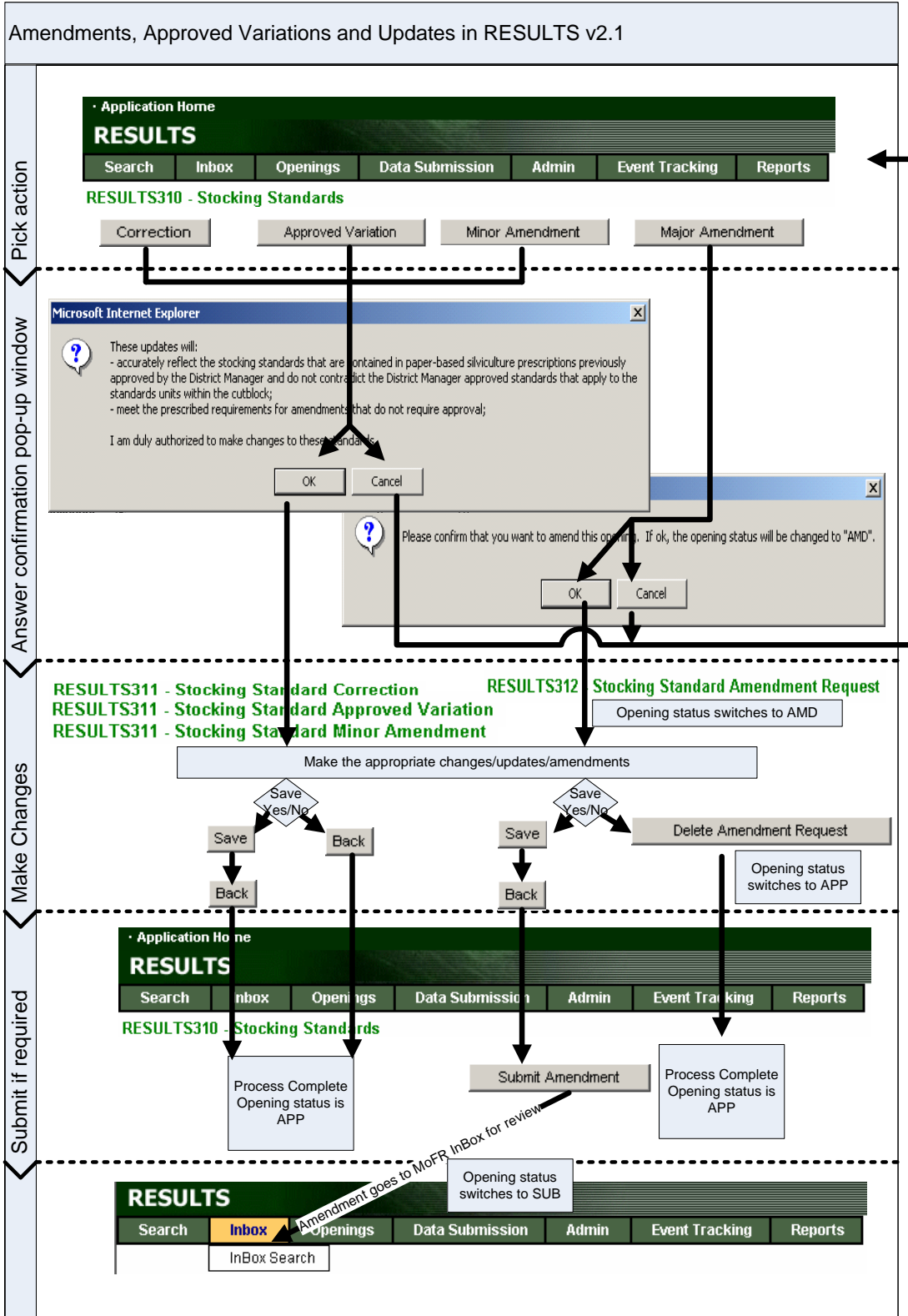


Figure 3.13.5-1: Using the RESULTS on-line application for completing corrections/approved variations/minor amendments/major amendments. See Section 13.1.8 for details on approving/rejecting proposed amendments.

3.13.6 Completing Amendments, Approved Variations and Corrections Submissions to RESULTS via the ESF

If you have the tools to generate XML/GML documents that can be submitted to RESULTS via ESF then you likely have the ability to generate amendment, or approved variation, or correction submissions as well.

To successfully submit an amendment/approved variation/correction you will likely need to generate an opening definition, which outlines the information for opening (including the amended/corrected/approved variation values in place of the original values). Be sure to include all SU information as RESULTS will do a full delete and replace of the existing stocking standard information before making the newly submitted information available. The key difference between this “amended/corrected” opening definition and any other opening definition is the action code contained with in the submission. These action codes are ...

- Correction – Action Code U
- Approved Variation – Action Code V
- Minor Amendment – Action Code M
- Major Amendment – Action Code A

Once the submission has been made to RESULTS via the ESF it will be treated in the same manner as those that are submitted via direct entry in the RESULTS on-line application.

3.13.7 Tracking Major Amendments through the Approval Process

Submission of major amendments made by licensees through either the ESF or direct entry in the RESULTS application will be located in the RESULTS InBox. Once the amendment is in the InBox it can be approval/rejection by MoFR, or it can be reviewed by either MoFR or the submitting licensee. From the submitting licensee’s perspective, this allows the licensee to review the proposed amendment, and also allows the licensee to check on the status of the amendment.

To review the proposed amendment, search the RESULTS InBox for the proposed amendment. To do this navigate to the RESULTS201 InBox Search screen, and ensure that the ‘Org Unit’ is set properly. Clicking the search button at this point will return all the records in the InBox and the user will have to pick the correct opening. The user can filter the records to display only submitted amendments (note standard regimes submitted for review will also be visible) by using the ‘Submitted’ status. Again the user may have to pick the correct opening from the list. The user may also filter the records so that only draft amendments (i.e. amendments which have not been submitted), or amendments that have been rejected are displayed by using the ‘Draft’ status. Again the user may have to pick the correct opening from the list. Alternatively, any of the opening keys (Licence/CP/CB, TimberMark/CB, Open number, or Opening ID) can be used to search for the opening for which there is an amendment proposed.

Once the opening for which the amendment has been proposed has been identified the details button will have to be clicked in order to navigate to the details of the submission. Clicking the details button will bring up the RESULTS310 Stocking Standards screen. Here the user must locate ‘Amendment Proposed’ hyperlink, which will take the user to the RESULTS312-Stocking Standard Amendment Request screen, which shows all the fields that have been modified. The

modified fields are highlighted in red or have red text. Clicking the back button repeatedly will bring the user back to the RESULTS 201 InBox search screen. From this screen MoFR may approve the amendment or reject the amendment. If MoFR rejects the amendment then a rejection note box will have to be filled in.

Approving Major Amendments in RESULTS v2.1

Application Home
Help

RESULTS

Search
Inbox
Openings
Data Submission
Admin
Event Tracking
Reports

RESULTS201 - Inbox Search

Org Unit: DOS - Okanagan Shuswap Forest Distr

Opening: Opening ID: Licensee Opening ID:

Client: Licence No: CP: Timber Mark: Cut Block:

Status: Submitted XML File Name:

Standards ID:

Sort By: Type Submitted Date Search Clear

Back

2 rows returned

Type	Opening ID	Licence	Cutting Permit	Timber Mark	Cut Block	Client & Locn	Status	Submit Date	Standards ID				
Amendment	33444	T0635	N	T0635N	5	00001575 00	SUB	2005-09-29	(+)		Details	Approve	Reject
Amendment	62462	TFL49	549	49/549	1	00002545 04	SUB	2005-06-10	(+)		Details	Approve	Reject

RESULTS310 - Stocking Standards

1 of 2 < > << >>

Back

SU: A Net Area To Be Reforested (ha): 14.7 Expiry Date:

Max Soil Disturbance: 9% Comment: N

BGC Zone/Sub/Var & Phase: ICH vk 1 Site Series/Type: 01

Standards ID: Standards Name: Amended: N

[Amendment Proposed](#)

RESULTS312 - Stocking Standard Amendment Request

Back

Org Unit: DOS - Okanagan Shuswap Forest District

Client Number: 00001575 Locn: 00 Name: FEDERATED CO-OPERATIVES LIMITED

Opening: 82L 068 0.0 242 Opening ID: 33444 Licensee Opening ID:

To compare the original values with proposed values click the History button

History

Printer Version

SU: A

Max Soil Disturbance: 9%

BGC Zone/Sub/Var & Phase: ICH vk 1

Standards ID:

Objective:

Net Area To Be Reforested (ha): 14.7

Comment: N

Site Series/Type: 01

Standards Name:

Geographic:

1 of 2 < > << >>

Ensure you check for changes in all SU's

Amended: Y

Save Add Delete

Regen Obligations: 4 7 15

No Regen Obligations:

Additional Standards:

Save

Changes from the original will be highlighted or lettered in Red

See next page

Search the InBox for submitted amendments

Navigate to amendment

Review the amendment

Figure 3.13.7-1: Tracking an amendment through the approval process.

Approving Major Amendments in RESULTS v2.1 (continued)

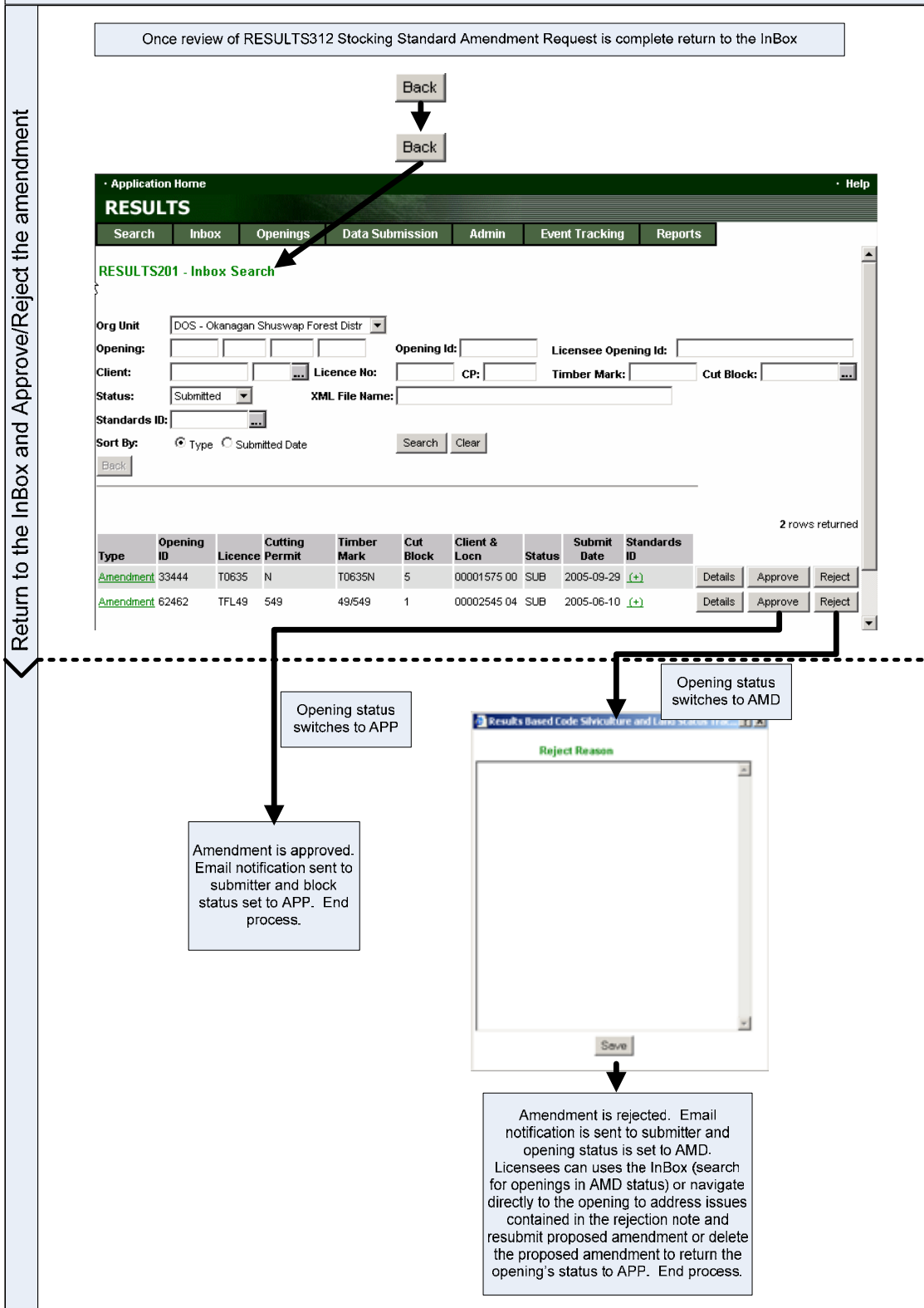


Figure 3.13.7-2: Tracking an amendment through the approval process continued.

3.13.8 Important Notes on Amendments, Approved Variations and Corrections (move this section to the end)

For Amendments, Approved Variations, or Corrections Submitted to RESULTS via ESF

It is important to understand that anytime a submission relating to standard units, or the information about a standard unit, is made to RESULTS via the ESF that all the information for all the standard units in the opening be included in the submission. The rationale for this is that the stocking standards in RESULTS are subject to a full delete and replace cycle when submissions are made. So, when RESULTS detects a submission containing any information about standard units (including amendments, approved variations, and/or correction) the current standard unit information held by the RESULTS database will be deleted, and replaced with whatever is contained in the submission document.

EXAMPLE: In the past, an amendment (on paper) specified for an area (e.g. SU1), add subalpine fir to acceptable species, extend free growing late from 15 to 17 years and reduce the MITD from 2.0 to 1.5m for that opening; however, if only these three attributes were submitted to RESULTS everything except these three attributes would be deleted. You must submit the entire stocking standard (all of the attributes) including these three changes.

Authority Level, Authorization Level, and Other Requirements

While the following requirements are especially important for amendments, they also apply to approved variations and corrections.

If you are making amendments in the RESULTS application or submissions to RESULTS through the ESF they will only be considered official amendments if the following conditions apply:

- **You have the appropriate professional certification (e.g. RPF);**
- **You have the appropriate authority to commit your company/client to the changes (e.g. on the company signing matrix held at the MoFR District Office);**
- **The amendments proposed are consistent with legislation; and**
- **The amendments are consistent with any overriding provisions of any operational plan (e.g. SPs, FDPs or FSPs) that apply to the area.**

If you are submitting amendments through or to RESULTS you must be:

- **Fully conversant with *Forest and Range Practices Act* and/or the *Forest Practices Code of British Columbia Act* requirements for stocking standards and amendment processing; and**
- **Fully trained in the appropriate use of RESULTS.**

This is important because as of June 1, 2005 the only way that amendments/approved variations/corrections can be submitted to MoFR is through submissions to RESULTS via the ESF, or direct entry into the RESULTS on-line application.

Opening Status

When completing corrections, or approved variations, or minor amendments in RESULTS or via the ESF, the opening status will be approved (APP) throughout the process. In contrast, an opening that is subject to a major amendment will be assigned a series of opening statuses during the process. This is important because any status other than APP may restrict a user's ability to declare milestones, or report forest cover data, or complete other tasks.

History

All actions in RESULTS are tracked, and available for viewing by both Licensees and MoFR. So any changes that occur from corrections, approved variations, minor amendments, or major amendment will be recorded by the system and may be audited at a later date.

Approved Paper Copy versus Electronic Copies

In the event that there are discrepancies between the approved legal document and information held electronically by RESULTS, the approved legal document will be considered official and it will be used for any auditing, or measuring performance.

3.14 Special Case Submissions

Special case submissions are those that are more detailed and/or unique. They require special attention that may not have been addressed in the previous discussions of submissions. For the purposes of this guide six types of special case submissions have been identified: multi-tenure submissions, bark beetle submissions, and submissions for retention or partial cutting openings, silviculture or site plan exempt cutblocks, reporting when harvesting and planting activities occur in the same reporting year, and openings that are subject to additional disturbances. It is important to note that RESULTS submissions for these types of situations are often dependent upon how the situation was submitted to the FTA system. Where appropriate, examples have been included with the discussions.

3.14.1 Multi-tenure submissions

A multi-tenure opening can exist when one opening spans more than one tenure (i.e. there would be more than one timbermark for the opening). If an opening is a multi-tenure opening, then, when the opening definition for that opening is submitted to RESULTS, it must be submitted as a multi-tenure opening.

Some situations in which a multi-tenure opening may exist include:

- TL within a TFL opening
- Private land within a TFL opening
- Private land within a Woodlot opening
- Forest Licence within a TFL opening
- Forest Licence within an Adjacent Forest Licence opening
- Master Licence to Cut with a Woodlot opening

For more information on multi-tenure openings, refer to the **FTA Industry Submission Guide** (<http://www.for.gov.bc.ca/ftp/HIS/external!/publish/esf/>)

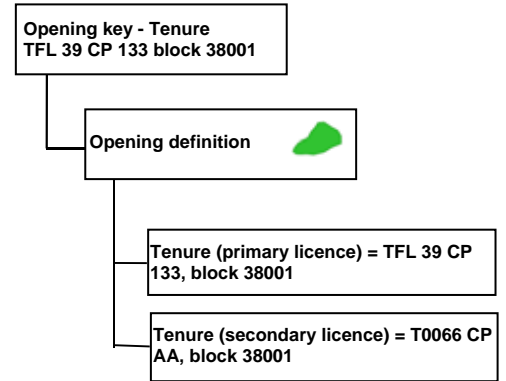
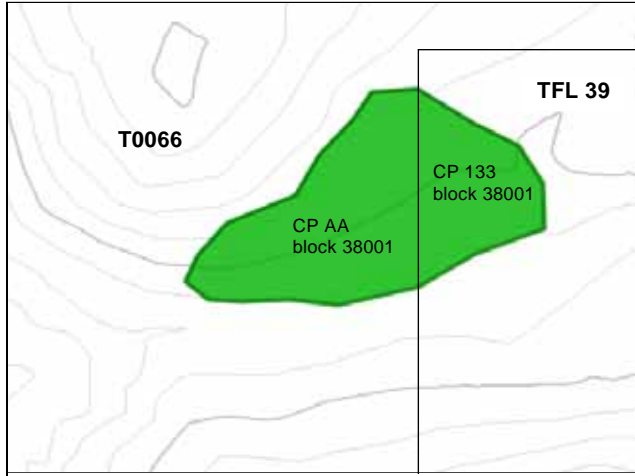
Opening Definition:

Opening definition submissions must identify the primary and secondary tenure(s). For the examples listed above, the submission would include two tenures, one will have the Is Prime Licence field set to 'yes', and the second will have the Is Prime Licence field set to 'no'. In the example below the multi-tenure opening has the TFL designated as the primary licence and the TL as the secondary licence. Note that the cutting permit numbers and timber marks are different for the two tenures, but the cutblock number is the same.

RESULTS305 - Multi-Tenure 2 rows returned

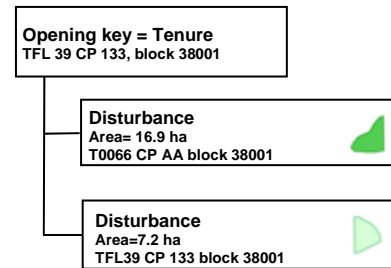
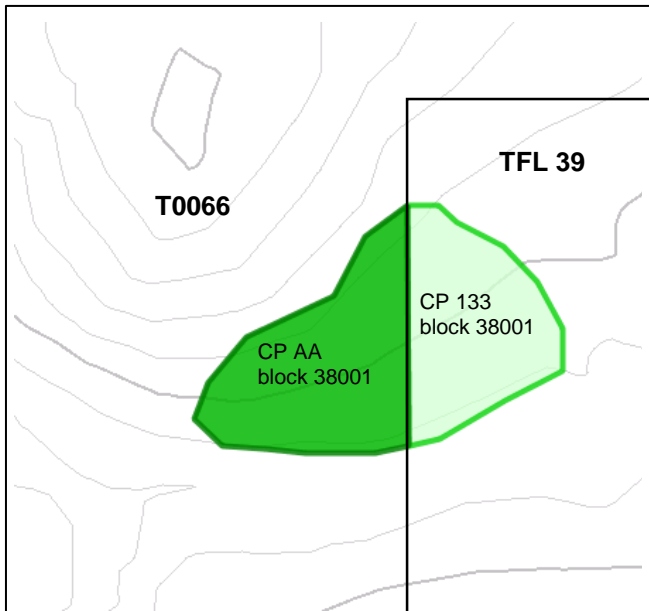
Licence Number	Cutting Permit	Cut Block	Timber Mark	Planned Gross Area (ha)	Planned Net Area (ha)	Primary Licence	Stat	Managed By	
								Licence	Cutting Permit
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			<input checked="" type="radio"/> Yes <input type="radio"/> No			<input type="button" value="Save"/> <input type="button" value="Cancel"/>
T0066	AA	38001	T66AA	16.9	16.9	No	S		<input type="button" value="Update"/> <input type="button" value="Delete"/>
TFL39	133	38001	39/133	7.2	7.2	Yes	S		<input type="button" value="Update"/> <input type="button" value="Delete"/>

In the opening definition submission, the primary licence and secondary licence(s) would be identified. The boundary for the opening would be the boundary of the entire opening. The opening boundary does not need to be split by tenure.



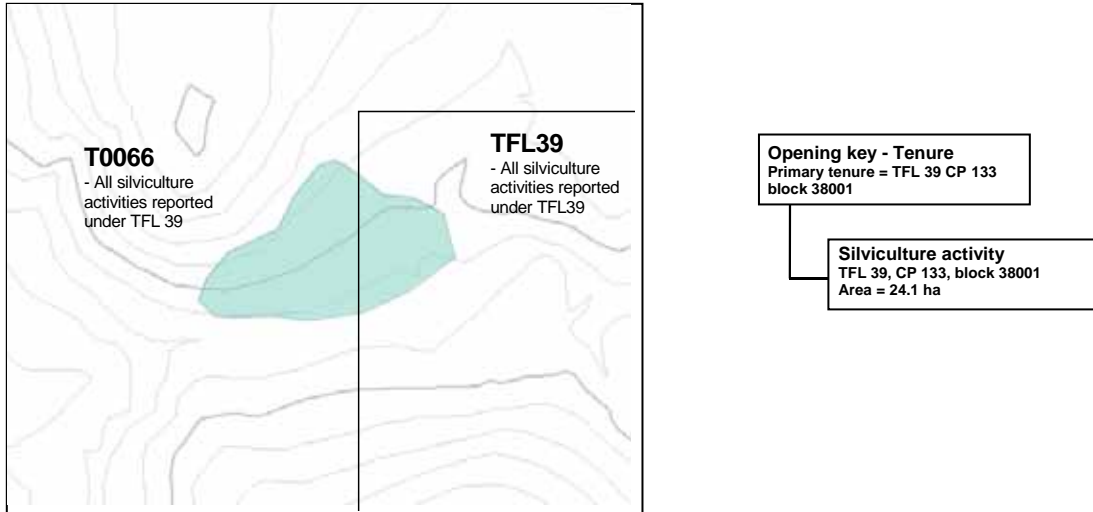
Disturbance Submission:

Disturbance submissions must be split by tenure (timbermark), with the harvested area reported for each tenure.



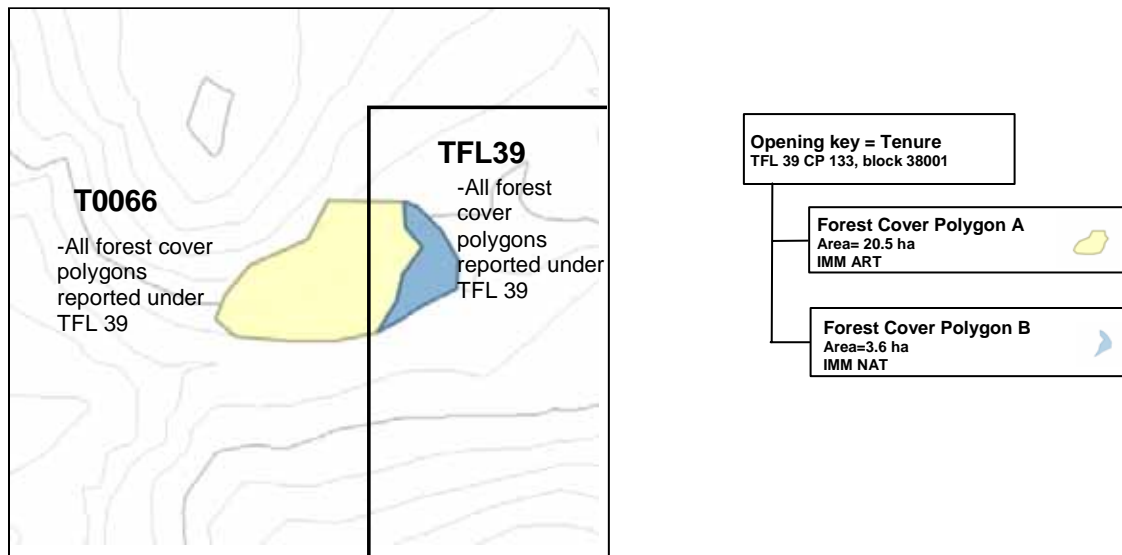
Silviculture Activity:

Silviculture activity submissions do not need to be split by tenure when activities are being submitted by block. In the event that activities are reported as annual roll-ups, then annual roll-ups are submitted by tenure, and the activity must be split by tenure. Silviculture activities would be reported under the primary tenure, and spatial data is optional.



Forest Cover Polygon:

Forest cover polygons do not need to be split by tenure. Forest cover submissions would be reported under the primary tenure. Spatial data would identify any forest cover polygons within the opening.



3.14.2 **Bark beetle submissions**

RESULTS reporting for openings created to control bark beetles can be done in a variety of ways, depending on how the harvesting is reported in FTA. In FTA, small bark beetle salvage patches can be addressed in several ways:

Example 1) Can have an external block boundary (gross area of opening) with numerous small harvested patches within it (net area). This is useful if you are expecting to have additional salvage harvest in the area;

Example 2) Can have numerous separate patches with the sum of the patches being the gross area for the opening; or

Example 3) Can submit each patch as a separate opening. This is not recommended as it involves a significant amount of additional reporting.

Note that some openings are incorrectly submitted as multi-tenure openings.

These situations are illustrated in the examples below. All examples assume that there are no roads within the cutting permit area.

Example 1: Opening boundary different than patch boundaries

Opening Definition

The opening boundary is a single polygon describing the external boundary of the opening, including all patches and any unharvested area. The salvage patches are assumed to be mappable units. Stocking standards can be applied to the whole opening, or it can be split into SUs. SU boundaries can overlap harvest patch boundaries.

Opening Gross Area = 15.0 ha.

SU 1 Area (harvested) = 3.9 ha.

Disturbance

The disturbed area is a multi part polygon made up of the harvested patches.

Disturbance Area = 3.9 ha

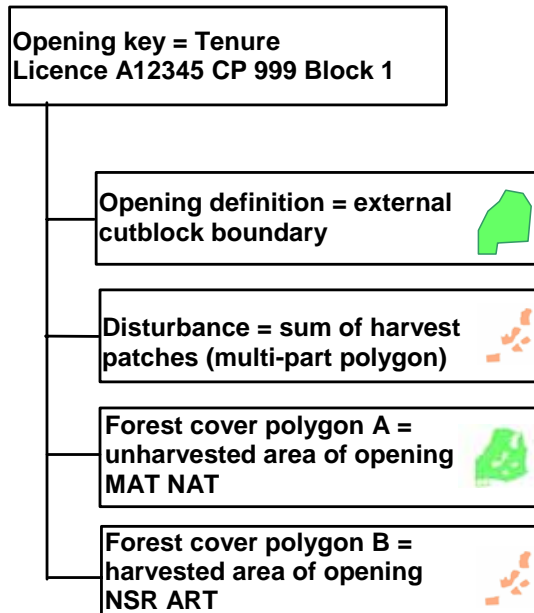
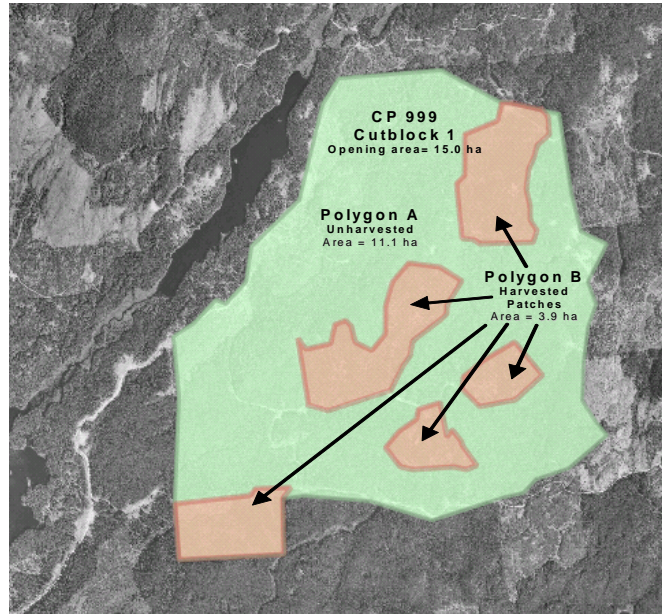
Forest Cover

Polygon A: The unharvested area within the opening would be one mature stratum (assuming the area has the same forest cover attributes and is all one SU). Spatially, this would be a single polygon with holes.

Polygon A Area = 11.1 ha

Polygon B: The harvested patches could be grouped together into one NSR stratum (again, assuming the forest cover attributes and SU are the same). Spatially, this would be a multi part polygon.

Polygon B Area = 3.9 ha



Example 2: Opening boundary = patch boundaries

Opening Definition

There is no external boundary around the patches as in example 1, so the opening boundary is the sum of the harvested patches. Spatially, this is a multi part polygon. Stocking standards can be applied to the whole opening, or the patches can be split into more than one SU.

Opening Area = 3.9 ha.

SU 1 Area = 3.9 ha.

Disturbance

The disturbance area is the same as the opening area and is also a multi part polygon.

Disturbance Area = 3.9 ha

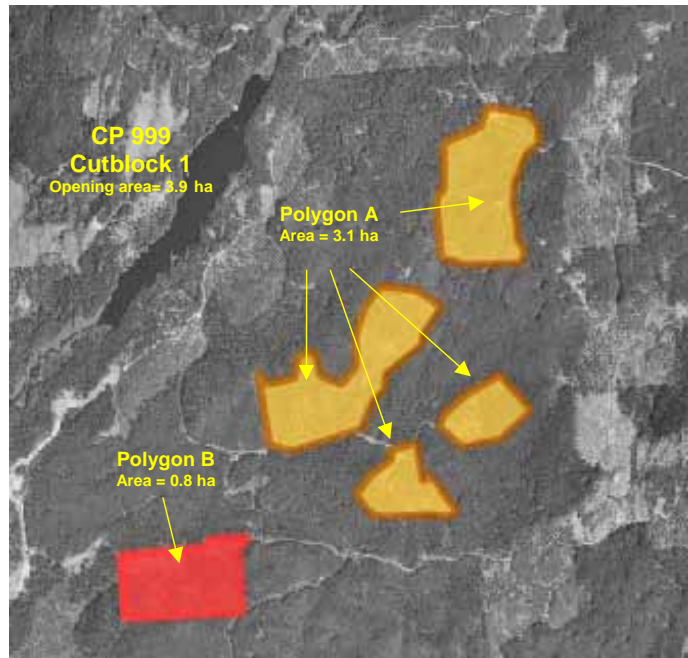
Forest Cover

Polygon A: 4 of the patches have similar forest cover attributes and are in the same SU, so they are grouped into polygon A. Spatially, this would be a multi part polygon.

Polygon A Area = 3.1 ha

Polygon B: 1 of the salvage patches has different forest cover attributes (e.g. 50% of the stand was harvested vs. 100% removal in polygon A) so it is reported as a separate forest cover polygon.

Polygon B Area = 0.8 ha



Opening key = Tenure
Licence A12345 CP 999 Block 1

Opening definition = sum of harvest patches (multi part polygon)

Disturbance = sum of harvest patches (multi-part polygon)

Forest cover polygon A = multi part polygon area = 3.1 ha
NSR ART

Forest cover polygon B = single polygon area = 0.8 ha
NSR ART

Example 3: Each patch = its own opening

In the third case, each patch would have to be reported as a separate opening, and could not be lumped together. The downside of this method of reporting beetle salvage harvesting is that all reporting must be done for each opening.

Opening Definition

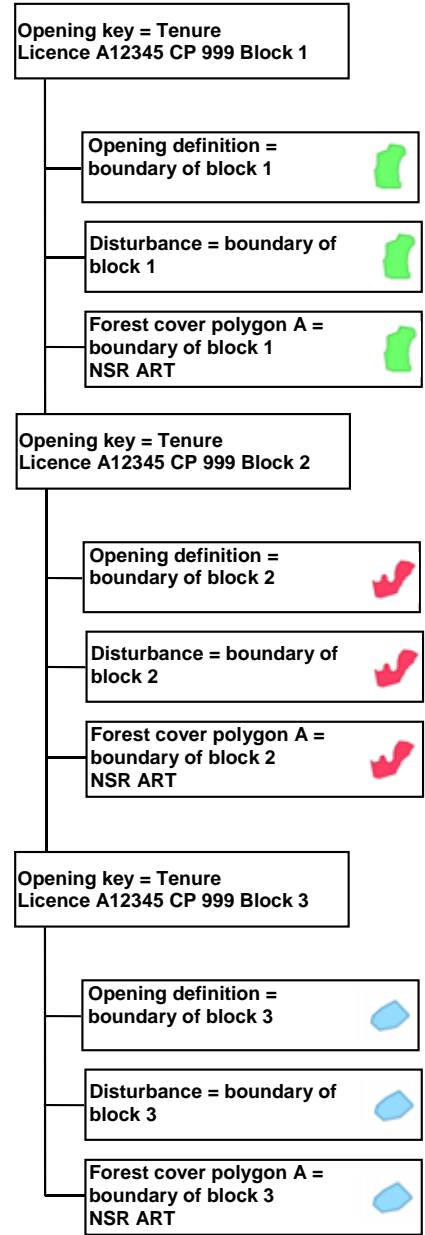
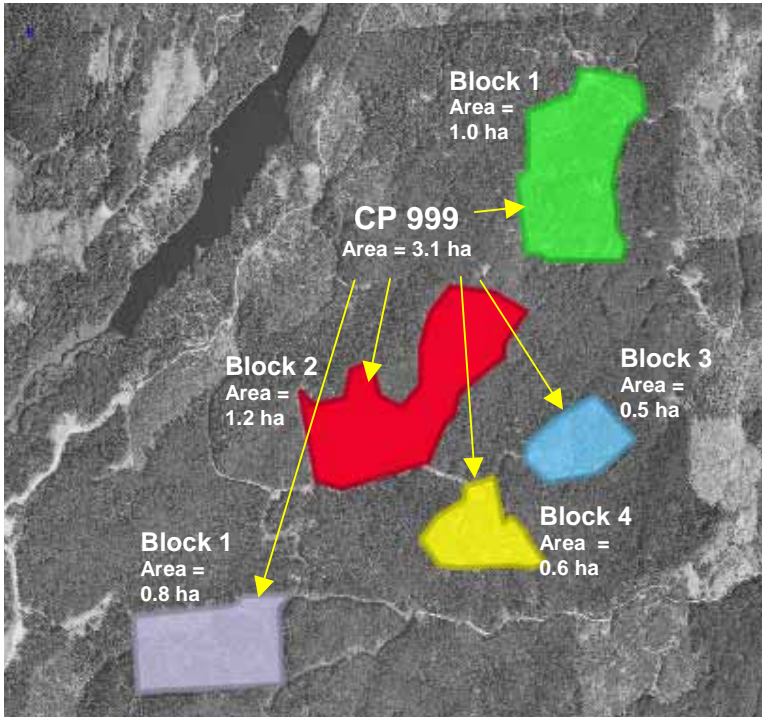
The opening definition of each opening is the outer boundary of each of the harvested areas. Stocking standards must be applied to each opening, and the openings can be split into more than one SU if required.

Disturbance

The disturbed area of each opening is the harvested area of each opening (in this example, this is equal to the opening area).

Forest Cover

Each block would be submitted as a separate NSR polygon, or could be split into more than one polygon if different forest cover attributes were present within a block.



And so on for block 4 and 5...

3.14.3 Partial Retention, Partial Cutting, or Intermediate Harvest Submissions

On areas where there are no regeneration obligations, or where

- there is uniform removal of standing timber within a standards unit; and
- the leading species retained is the same as the previous stand; and
- the volume removed is less than 20% of the pre-harvest volume; then

the only required submissions include: an opening definition, and a disturbance report (due on or before May 31 for the preceding year ending Mar 31), as well as a forest cover polygon submission (12-24 months after the disturbance).

For intermediate harvests only, the map and attribute submissions can use pre-existing cruise or forest cover attribute information describing the polygon.

For areas that do not meet the criteria of:

- uniform removal of standing timber within a standards unit; or
- the leading species retained is the same as the previous stand; or
- the volume removed is less than 20% of the pre-harvest volume; then

the required submissions are same as those for any other cutblock.

3.14.4 Silviculture Prescription or Site Plan Exempt Cutblocks

Disturbance, silviculture activity, forest cover polygon, and milestone reporting is not required for silviculture prescription exempt openings since there are no associated regeneration obligation. However, an opening definition must be submitted with the site plan exempt indicator set to yes. Exempt areas are generally too small to map and to warrant forest management activities. These areas will usually regenerate naturally.

For site plan exempt openings there may be default standards that the licensee is obligated to meet. An opening definition must be submitted with the site plan exempt indicator set to yes.

3.14.5 Reporting when both Harvesting and Planting occur in the same Reporting Period

When the completion of harvesting and planting occur within the same submission period, both a disturbance submission and a silviculture activity submission are a required. The licensee will also need to complete a forest cover submission for the disturbance, and if the SU is satisfactorily restocked as a result of the planting activity an additional forest cover submission should be completed. In the event that the SU remains not satisfactorily restocked no forest cover submission is required.

3.14.6 Existing Openings Subject to Additional Disturbances (e.g. fire)

Periodically disturbances such as wildfires may impact existing openings. Licensees may need to amend their existing site plan to address this, or a new site plan may be created to manage the newly disturbed area. In either case it is important that any historical forest cover, or activity information for the older openings be preserved, as this information may still be relevant to future analyses.

In the event that a disturbance, such as a wildfire, occurs within an existing opening and there is no need to create a new site plan (although amendments may be required to ensure that the standard unit areas, and the associated standard regimes are appropriate for the site), then activity and forest cover information should continue to be submitted for the opening. It is especially important to continue with these submissions if the licensee is considering seeking any sort of relief under FRPA section 108.

In cases where the licensee would prefer to create a new site plan to manage the newly disturbed area then they should do so. These new openings would take precedence over the older openings, but they must not over-write/delete the historical openings.

In either case the historical opening data should never be deleted. Where new site plans are created to manage the newly disturbed area then the old openings will have to be archived by MoFR. Archiving these openings will prevent the loss of any historical forest cover or activity information.

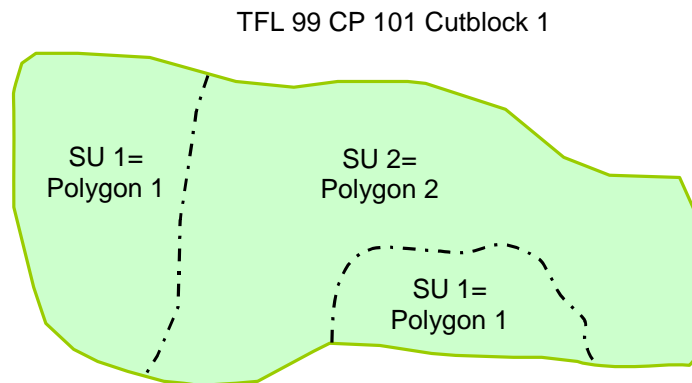
4 Formatting of the RESULTS Submission Data

Do not overlook the importance of the spatial information within the submission. It is critical for a properly formatted document to include the properly formatted spatial information

4.1 Properly Formatting Spatial Data in Submissions

One of the more difficult issues to deal with when preparing a RESULTS submission document is understanding the spatial data and how it should be structured for the submission. Traditionally we are taught to think of spatial information in terms of polygons, lines and points. Polygons, lines, and points are still key to the structure of the spatial information, but for electronic submissions, these simple geometries must be extended to include multiple parts and internal holes.

Multi-part geometry allows for a single feature (such as a standards unit) that is represented by two spatially isolated polygons, to be represented in GML as a multi-part polygon. It is extremely important to use multi-part geometries when trying to represent a single feature when there are gaps between some of the feature parts. Multi-part polygons in GML **are not** the same in structure as utilizing two polygons to represent the same feature. Attributes are stored only once in a submission for a feature being represented by a multi-part geometry (i.e. a single standards unit that occurs in different parts of an opening- see diagram below). Representing a feature with two polygons, such as one standards unit described spatially by two polygons with duplicate attributes, within a RESULTS submission file **will cause your submission to fail**.



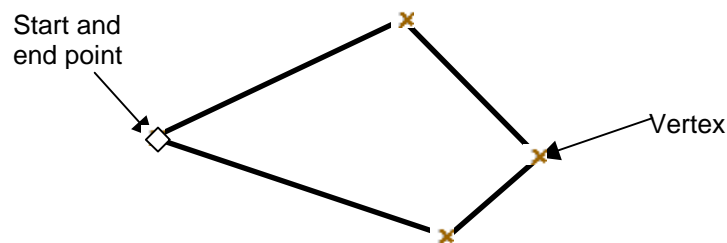
This opening (CP 101 Block 1) is represented by a multi-part polygon for SU1 and a simple polygon for SU2, not by 3 separate polygons.

4.2 Spatial topology

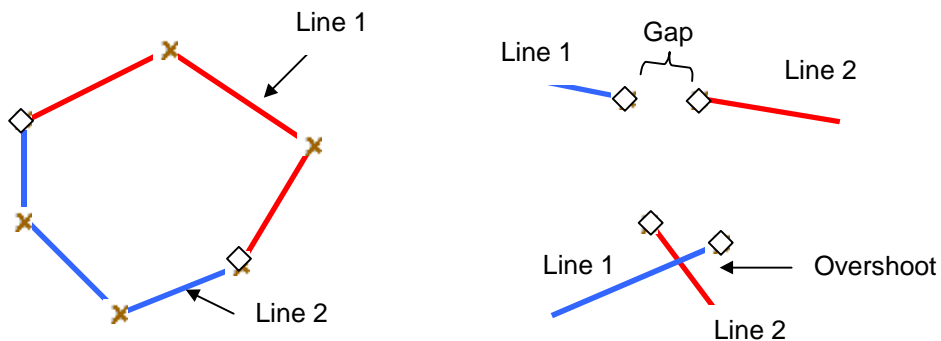
Topology refers to the structure and rules that must be applied to have valid geometric objects that can be used in analysis.

4.2.1 Polygon Topology

A polygon is a closed shape that has a starting point equal to its' end point and is made up of a minimum of three points or vertices.

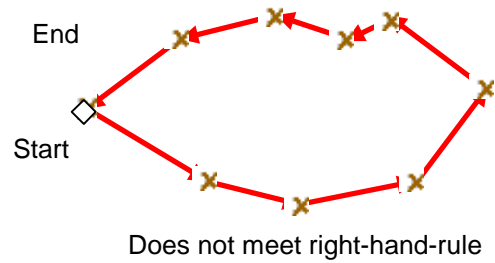
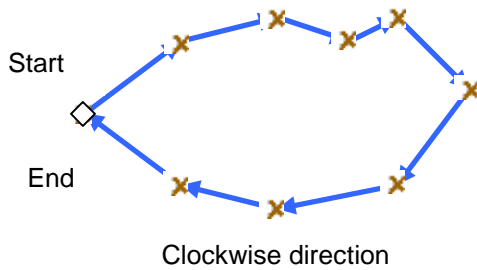


A polygon start and end point must be of the exact same coordinate for the polygon to be considered closed. In some CAD systems polygons can be represented using lines. When lines are used to represent polygons the start and end points of each line forming the polygon must have start and end point coordinates that match exactly. Lines forming the polygon cannot overlap and the point of intersection must be where the end and start points meet (i.e. no gaps, or overshoots – see figure below).

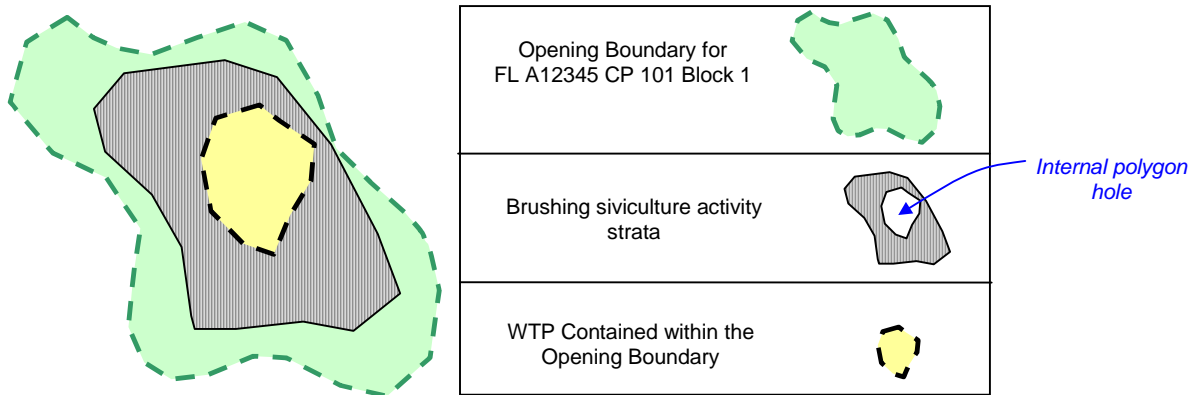


To ensure that end points and start points exactly match with CAD data requires the use of third party software. It is strongly recommended that data being converted from DGN to GML be cleaned using a tool such as MAPS 3D prior to converting to GML.

For polygons, it is a common approach to ensure that the order of vertices flows clockwise. The standard approach ensures that the inside of the polygon is always on the right side of a line going from the start of the line to the end. This is often referred to as the “right-hand-rule” and helps identify the inside and outside of the polygon. This rule should be applied to polygon holes as well.



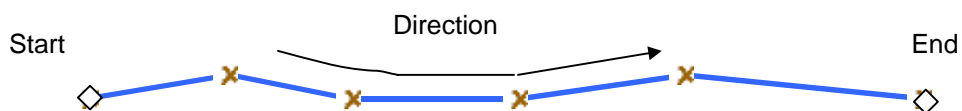
In cases where an internal hole within a polygon is required, such as a new opening that completely surrounds another previously submitted opening, the spatial data must utilize internal rings or polygons to encode the “donut holes” in the spatial information (see diagram below). This is because GML uses linear rings to represent internal polygon holes.



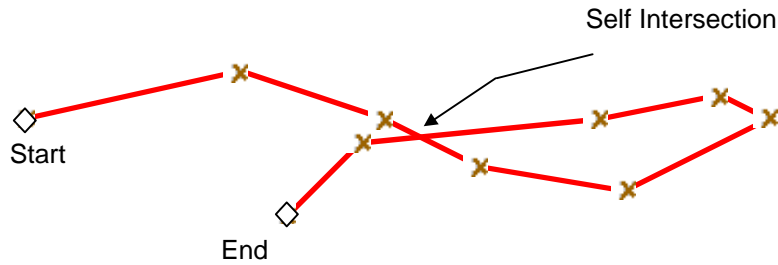
Holes in the geometry may or may not be required depending on what is being depicted. In the scenario above the opening boundary submitted covers the entire area of the block inclusive of the WTPs. For silviculture activity reporting, the area that underwent brushing did not include the area covered by the WTP. Therefore the WTP area appears as an internal polygon hole in the silviculture activity geometry as shown above.

4.2.2 Linear Topology

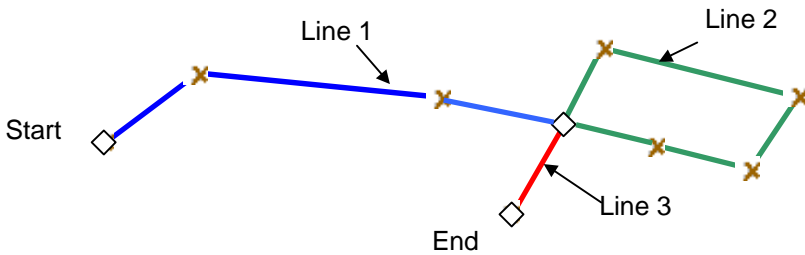
Lines are fairly simple structures. These consist of a starting point and at a minimum, an end point. Direction of a line is dictated by the location of starting and end points.



When building information that requires direction, ensure that lines are formatted correctly. Lines must not intersect themselves in all submissions.



When a line intersects itself it likely identifies that two separate lines are required.

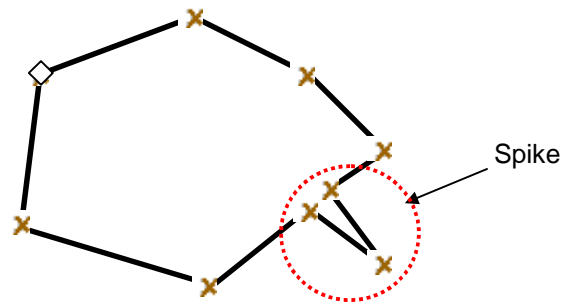


4.2.3 Common Topology Issues

Spikes and overlapping features are common issues that must be addressed in spatial data.

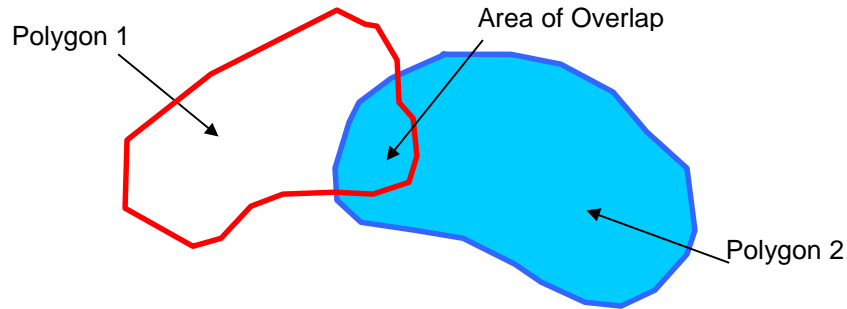
Spikes

In some cases spikes are formed during the preparation of data. Spikes are portions of lines or polygon edges that form sharp angles between three vertices. These spikes become individual polygons as automated processing occurs in many GIS or spatial processing systems.

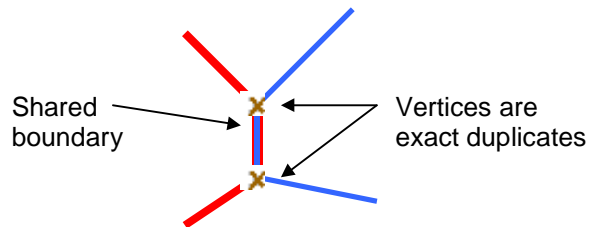


Overlapping Features

When dealing with multiple geometrics, overlap can occur and small slivers formed between geometrics. Where features follow a shared boundary, the vertices must be identical in both geometrics to ensure no slivers or overlaps occur.



When formatting shared boundaries in a CAD environment the same lines (a copy) should be used to form a boundary between features.

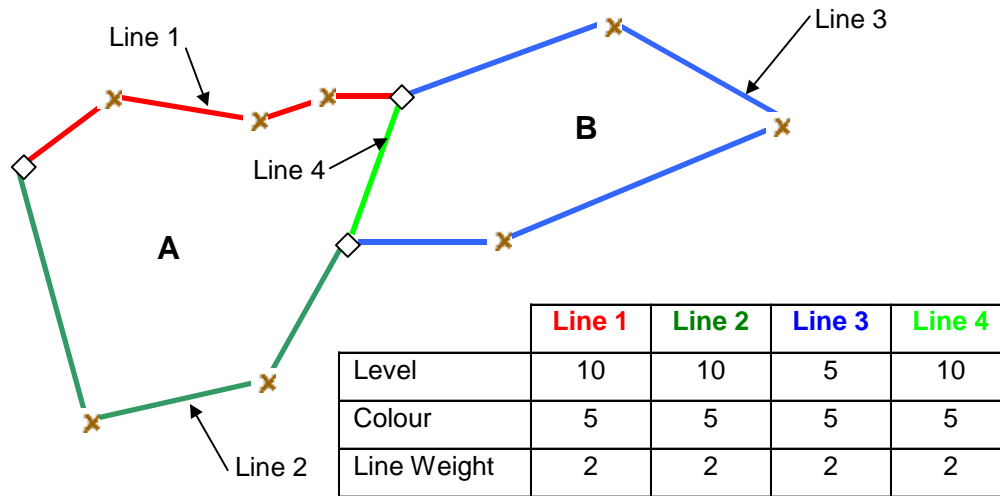


In Microstation using complex shapes to represent geometry makes ensuring the shared boundaries between features difficult. In Microstation it is recommended that polygons are represented using lines.

4.2.4 Topology and CAD Systems

CAD systems, such as Microstation do not support management of topology. This does not preclude using CAD systems for mapping for ESF submissions, but does require standardization of creating files and the use of third party software. The management of topology and structures is one of the key things separating CAD systems and GIS systems.

Polygons can be represented in Microstation by using proper structure.



Polygon A is formed by lines 1, 2 and 4 as they all have the same level, line weight and color (other factors can be used to relate lines into polygons). Polygon B cannot be created because there is no way to relate color, line weight, and level to form a polygon. Polygon B is difficult to determine even though it “looks” right based on the fact that line 3 is on a different level from all other lines. Using CAD attributes help data conversion tool create topological relationships.

There are many ways to create topological relationships in a CAD environment, but they require the development and consistent application of standards. It is recommended that organizations wishing to use CAD tools to map data for submission consult an expert to create standards to create the structures necessary to properly convert into GML.

4.3 Spatial Projections

When dealing with spatial projections, three general types are supported: Geographic (Latitude/Longitude), Universal Transverse Mercator (zone 7,8,9,10,11 in metres), and Albers Equal Area (BC Standards). When supplying e-submission documents, the projection information must be defined for each spatial object. For information on encoding GML and examples for Forest and Tenure Administration submissions, refer to the FTA Submission Guide or RESULTS Submission Guides available at <http://www.for.gov.bc.ca/his/esf/>.

5 Mapping Standards

In addition to being properly formatted, spatial (i.e. mapping) data must meet pre-determined data standards. This helps ensure the quality and integrity of the spatial data.

Map Scale

The base map for RESULTS submissions is 1:20000, and all map boundaries must originate from a 1:20000 (or greater) map scale. This scale corresponds with the scale of the Terrain Resource Information Management (TRIM) map base. Using a map scale greater than 1:20000 such as 1:10000, or 1:5000, will not increase the positional accuracy of the submission with respect to the TRIM or VRI map.

Position

Maps submitted to RESULTS will be checked for positional accuracy with 1:20000 TRIM maps, and/or Vegetation Resources Inventory (VRI) maps.

Accuracy

At the 1:20000 scale, polygon boundaries submitted to RESULTS must be within one millimeter of their true, NAD83 map location. That is to say, polygon boundaries must be within 20m their true location (Figure 5-4). In addition, one tie point must be established within 10m of its true NAD83 position for all traversed boundaries.

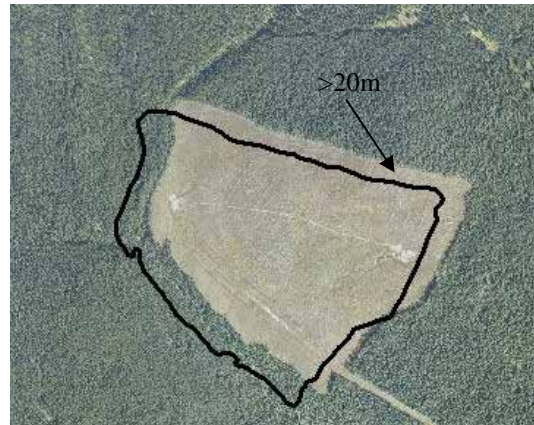


Figure 5-4. Relative positional accuracy overlay. This polygon is greater than 20m from its true location. This would be an unacceptable submission, and the submission would be returned to the Licensee.

Minimum Resolution

Minimum resolution refers to the degree to which closely related features can be distinguished. For RESULTS submissions, linear features cannot be less than 10m apart. This is to accommodate the fact that some GIS's may have difficulty with smaller resolutions.

Acceptable Units

The only acceptable units for submissions to RESULTS are hectares (ha).

Tolerance for differences between attribute data and spacial data

There is a tolerance for differences in area between what is submitted within the attribute data and what is calculated from the spatial data, which is dependent on the size of the opening. For openings less than 20ha the attribute data and the spatial data must be within 1ha or 25% of the opening size – which ever is less. For openings greater than 20ha the attribute data and the spatial data must be within 5% of the opening size.

Notes on Historical data

The MoFR recognizes that there may be situations where the position and accuracy of historical spatial data may be less than ideal. To deal with this the MoFR will (with few exceptions) accept that more recent opening submissions via the ESF are more accurate, and better positioned than spatial data for older openings. This will be advantageous in situations where (for example) a recently submitted opening definition (that has been GPS traversed) overlaps a historical opening which was hand traversed and may not be as well positioned, nor as accurate. In this case the more recently submitted opening will be accepted.

6 Precision Standards for Forest Inventory and Forest Cover Data Submissions to the Ministry of Forests

Under the FPPR and the THSPR the minister has the authority to specify the form, manner, content and accuracy of information submitted to government ([Appendix B](#)). The following section summarizes the minimum precision standards that must be met by licensee forest inventory or forest cover data submissions. Information in this section should be used in conjunction with standards identified in the previous sections of the document

These precision standards identify the maximum differences that are allowed between the licensee and ministry estimates of a forest inventory/forest cover attribute or stratification. Where difference between the licensee estimate and the Ministry estimate of an attribute exceeds the required precision standard, the Ministry may consider pursuing penalties under the Administrative Orders and Remedies Regulation (FRPA), or under the Administrative Remedies Regulation (FPC).

These standards should not be confused with FIA or contract management standards, which may or may not be more onerous.

Forest Inventory Attribute	Precision Standard for data submissions	Comment
Inventory species composition	<ul style="list-style-type: none"> Only trees identified as commercial tree species may be included in the composition Must correctly identify the leading species Estimate of individual species composition percentages must be within 20% of the Ministry estimate 	<ul style="list-style-type: none"> Leading species is the trees species with the greatest number of trees per hectare. Percent composition of immature tree species is based on stems per ha. Percent composition of mature trees is based on basal area.
Silviculture species composition	<ul style="list-style-type: none"> Only trees identified in the applicable stocking standards for the standards unit may be included in the silviculture species composition Estimate of individual species composition percentages must be within 20% of the Ministry estimate 	
Total Trees / ha	± 20%	
Well spaced or free growing stems / ha	± 20%	
Estimated stand age	± 20%	
Estimated tree heights	± 20%	
Site Index	± 3 m	
Estimated diameter	± 20%	
Pest Infection	Absolute difference of ≤10 % in the estimate of pest incidence between the reported and Ministry estimate would be unacceptable.	For example, it would be unacceptable if the reported estimate of pest incidence is 2% and the Ministry pest incidence assessment is 13%.

Note: The above precision standards are measured by determining the difference between the data reported by the Licensee and data collected from a Ministry survey of the same area.

6.1 Stratification standards

Within a standards unit, stratification and creation of additional forest cover polygons and associated forest cover attributes must occur:

- If there is more than a 20% difference in leading species composition. For example PI8Sx2 must be separated from PI5Sx5;
- If there is a switch in the leading species. For example Fdc8Cw2 must be separated from Cw6Fdc4;
- If the species composition changes from a mixed species stand to a pure stand. For example: Fdc10 must be separated from Fdc6Hw2Cw2;
- If there is a strata that is below the required minimum stocking standard at the regeneration or free growing time frames;
- If there is a strata that has more than 10,000 stems per hectare;
- If the age of the leading inventory species in adjacent strata have a 20 year age difference or more;
- If the height of the leading inventory species in adjacent strata have a difference of 10 meters or more;
- If the site index based on the leading inventory species in adjacent strata have a change of more than 3 metres.

6.2 Minimum Polygon Size

Within a standards unit, for any strata or additional forest cover polygons to be created, the following minimum sizes apply:

- For the purposes of post-harvest, regeneration delay and free growing inventory updates, the minimum size requiring the development of a separate polygon for not satisfactorily restocked or not free growing areas is 1 hectare;
- In stocked or free growing polygons where boundaries are readily recognizable and distinct on an air photo, a minimum polygon size of 2 hectares is required;
- In stocked or free growing polygons where boundaries are not readily recognizable and distinct on an air photo, the minimum polygon size is 5 hectares;
- For the purposes of wildlife tree patches and reserves the minimum size is 0.25 ha.

6.3 Partial Cutting

On areas where there is uniform removal of standing timber within a standards unit, and

- the leading species retained is the same as the previous stand; and
- the volume removed is less than 20% of the pre-harvest volume; then
- no new forest inventory survey needs to be done.

However, a forest inventory report still must be submitted to report that the polygon attributes and their location within the cutblock after harvest. In this case only, the map and attribute submissions can use pre-existing cruise or forest cover attribute information describing the polygon.

Appendix A: Tools for preparing submissions

There are many tools and approaches to managing the information for e-submission to the MoFR or MAL. One key feature of the e-submissions is that the submission format is not specific to any particular software application. The format standards are internationally developed standards and are supported by many spatial and non-spatial applications. Below is a general description of information management product groups for managing land and resource information.

Outlined below are common computer software packages for managing land and resource information being utilized in British Columbia and the generic approaches for creating e-submission with these various systems. The list is not exhaustive, and the Ministry of Forests does not advocate using any particular system, listed or otherwise.

Product Group	Description
Computer Aided Mapping/Design Applications (CAM/CAD)	These applications support cartographic design and development, but do not provide direct linkages between spatial elements and their attributes. These applications typically do not include support for spatial topology, projections, and attribute integration (e.g. AutoCAD, Microstation).
Geographical Information Systems (GIS)	Geographical information systems focus on managing and analyzing spatial information and provide a mechanism to relate spatial and attribute information directly. They help manage spatial topology, projections and integrate attributes (e.g. Arc).
Non-Spatial Forest Management Systems	There are many systems in use across the province to manage attributes relating to inventories, surveys or appraisals that do not directly manage or integrate spatial information into the product. In many cases spatial data is managed in a separate application such as a CAM/CAD or no spatial information is captured.
Integrated Forest Management Systems	Integrated forest management systems manage both the attribute and spatial information relating to forest applications (e.g. GENUS).
Field Data Collection Systems	Field data collection systems (handhelds) are hardware/software systems that are used to collect data in the field and import into a data management system.
Data Conversion System	These tools are often referred to as data transformation tools and convert data from one format and structure to another (e.g. FME).
e-Submission Document Management Tools	There are tools developed to support direct editing of e-submission documents. These tools focus directly on editing the content of an e-submission document (e.g. eziLink).
Development Libraries and utilities	The last option for supporting GML /XML submissions is through the development of custom applications designed to support XML/GML directly. To support this development many commercial and non-commercial development libraries are available.

Computer Aided Mapping/Design Applications (CAM/CAD)

Many groups utilizing CAM/CAD packages for mapping often use database, spreadsheets or documents to track non-spatial information. These non-spatial management systems could be forest management systems or custom solutions for management of attributes. Utilizing CAD/CAM packages for electronic submission will require the use of other applications to integrate and structure the spatial and attribute data into the necessary formats such as extract, load and transform tools or e-Submission Document Management Tools.

There are many key issues that will be faced in this option for submitting e-Submissions. First, CAD/CAM packages do not directly support spatial topology (see appendix B for definitions of topology) or often utilize different, often complex, data structures to represent spatial data that is not easily integrated with attribute information. CAD packages do not support mapping projections and often utilize arbitrary coordinate systems for mapping that do not directly relate to real world coordinates. Data from CAD/CAM software and formats can be transformed into correctly formatted GML, but users may experience translation problems that require manual editing and fixes. For transformation of CAD/CAM data to work more smoothly, the structure of the CAD data and data creation processes must be based on extremely good standards that are applied consistently.

Geographical Information Systems (GIS)

Licensees utilizing geographical information systems for mapping often use custom or commercial forest management systems to manage complex attributes. Often attributes and spatial information are tightly integrated and relating spatial data to attribute information is not a difficult exercise. Some commercial GIS packages may support export to GML, but currently GML support is evolving and requires some custom development to create properly formatted GML.

Although some GIS tools generate GML, they often do not provide support for structuring the spatial and attribute information in a structure to meet the e-Submission standards. Use of GIS tools will often require the use of secondary applications or customizations to correctly format an electronic submission. This can be gained through the use of extract, load and transform tools or e-Submission Document Management Tools.

Non-Spatial Forest Management Systems

Non-spatial forest management systems provide support for managing information that is necessary for submission to government. Such systems manage survey information, silviculture activities and related details, but do not directly support mapping of spatial information. Some systems do provide linkages by linking fields to spatial data stored in a GIS or CAD/CAM, but require user intervention to manage the relationship between the spatial and attribute systems.

For electronic submissions, the use of Data conversion tools or e-Submission document management tools are essential to creating properly formatted submissions. Direct export of attribute information from the non-spatial forest management systems to XML is anticipated to be available. Integration of the spatial and attribute information and creation and management of spatial data is still anticipated to occur through external applications. In some cases, customization of the export utility may be required to meet the Ministry of Forest standard codes for a particular client's specific customizations/implementations of the forest management system.

For information particular to your software product, contact your forest management system provider.

Integrated Forest Management Systems

Integrated forest management systems are anticipated to support direct export of e-submission documents from the application. The tight management of information and control of business processes and the strong association between spatial and attribute information allows for easy export of information to e-submission format. In some cases, customization of the export utility may be required to meet the Ministry of Forest standard codes for a particular client's specific customizations/implementations of the forest management system. For information particular to your software product, contact your integrated forest management system provider.

Field Data Collection Systems

When consultants use field data collection systems the collected information must be loaded into an integrated forest management system, a non-spatial forest management system or other tool to allow for the creation of the submission format.

Data Conversion Utilities

Data conversion applications provide a generic framework as well as tools to allow for data translation routines to be developed and executed. These tools represent a set of core technologies for transforming attribute and spatial data and require specialized training and expertise to develop transformation routines. Currently, the MoFR is providing free access to a common Data conversion tool and training (see the ESF website for details on accessing the Feature Manipulation Engine FME at <http://www.for.gov.bc.ca/his/esd/>).

Data conversion tools function most effectively for organizations with very structured input data sources or locations that have dedicated staff to train and utilize the transformation tool.

e-Submission Document Management Tools

As e-submissions are evolving, tools specifically designed to create and manage e-submission documents are becoming available. These tools focus on the business process of creating and editing spatial and attribute information for e-submission. Current systems available can act as stand alone applications capable of creating submission without any GIS, CAD/CAM or forest management system or integrate with existing commercial and non-commercial systems. These tools provide the attractive option of visualizing the e-Submission structures and formats without needing to understand the details of standards or technologies.

Development Libraries and Utilities

A final option for creation of e-submission documents is the use of custom applications that provide specialized conversion or editing capabilities and/or integrate directly with a Licensee's existing mapping and information management systems. There are many different sources for programming libraries for many development tools and in many cases, modern development environments provide direct support for XML. Libraries for working with spatial data and GML are available from most GIS vendors as well as open source libraries available on the internet. Developing custom solutions utilizing development libraries requires a high degree of technical expertise and would likely be undertaken in very specific cases.

Selection of the Appropriate Tool

Selecting the appropriate approach to creating submissions can be overwhelming. Outlined below are some common situations for forest management mapping and information management and suitable approaches for preparing submissions.

No Mapping or Data Management Infrastructure

Where an organization has no existing mapping or data management infrastructure and has typically contracted the development of cutting permit, road permit and silviculture mapping and entry of forms, the most logical approach to preparing and submitting e-submission is through a data service provider. Service providers are beginning to offer a wide range of services for e-submissions to help licensees prepare and submit tenure and silviculture information to the MoFR.

CAD Mapping without Linked Attribute Information

Where an organization utilizes a CAD tool for the creation of mapping information, but does not utilize a database system or application to manage attribute information the licensee could use a service provider or an application to prepare submissions. The service provider option is best suited when there are a small number of submissions to be made and/or the licensee does not wish to spend the time and effort learning new technology. If a licensee prefers to control the creation or wishes to utilize internal resources of the submissions, the best option is to use an e-Submission Document Management Tool.

Inconsistently Managed GIS or CAD Mapping and Attributes

Where an organization's data is found in various systems with both spatial data and attribute information not following a consistently applied standard, the best approach to create submissions will be to utilize an e-Submission Document Management Tool. This approach is more likely to make the process of developing submissions easier as the tools provide the functionality necessary to correctly format the submission without depending on correctly formatted data. Other alternatives rely on very specific format and structure or a great deal of technical expertise to accurately create the submission document.

Well Managed GIS or CAD Mapping and Attributes

In instances where consistent standards have been utilized in creating spatial and attribute data and the relationships between attribute and spatial are well established, various approaches exist to correctly creating submission documents. Firstly, an organization could utilize a Data Conversion Tool and create scripts to extract information from the data stores and convert it into the submission format. This approach requires expertise in the development of translation scripts and use of somewhat complicated data conversion tools, but allows for easy batch processing of submissions.

Use of non-spatial Forest Management Systems

In cases where organizations have systems in place to manage attribute information, but use various approaches to manage spatial data, there are two main approaches. If the spatial data and the attribute data are managed consistently and relationships between spatial data and attributes are well established, data conversion tools may prove useful. In cases where the linkages between spatial and attribute information is not well established and standard data

management approaches are not followed, an e-Submission Document Management Tool is a likely solution. This approach will allow for submissions to be quality assured and provide easy methods to visualize and review the submission prior to being submitted.

Integrated Forest Management Systems

In instances where an organization utilizes an integrated forest management system such as Genus or Inform, the best approach to dealing with e-submissions is to talk to your system provider to determine if they are supporting e-submissions directly from within the integrated system. If your provider does not have support or it is a system developed in-house, it may be worthwhile exploring the development of custom applications that create the submissions directly and allow for quality assurance and review of the submission. In this situation where technical resources are available, the use of a data conversion tool may be a suitable approach.

Key factors in selecting an e-submission approach

How well is the data managed? Poorly managed data makes batch processing, data conversion and the development of custom scripts difficult. Don't assume that if you have a database system in-place that your information is well managed, information management also relies on how a system is used and implemented. Poorly managed data increases costs regardless of whether or not a licensee uses a service providers. Well managed data means less.

What technical resources and skills does an organization have to allocate to the preparation of e-submissions? Data conversion and scripting requires technical resources to maintain and manage. This simplest approach to managing technical resources is to utilize a qualified service provider. The more technically challenging approach is development and maintenance of data transformation scripts.

How many different systems do you use to manage information that you will be submitting? If you utilize many different systems to manage information that will be submitted, the solution you select should work for all the types of submissions you will be making.

Do you already have a system that directly supports e-submission? Many information management systems utilized in British Columbia will have e-submission support. It is worth checking with your product vendor to determine what submissions they support.

What features will make your life easier when creating submissions? The selection of one approach over another is not trivial and it is worth investigating the options out there. Talk to product vendors and service providers to fully understand what will work best for your situation.

Appendix B: Related Legislation

There are two main regulations related to data reporting: the Forest Planning and Practices Regulation under the Forest and Range Practices Act, and the Timber Harvesting and Silviculture Practices Regulation under the Forest Practices Code. Sections of these regulations and legislation are provided below. (**NOTE: these are not the official copies of these regulations or legislation, and they may become outdated. They are provided for reference purposes only)

Forest and Range Practices Act

107 Limitation on liability of persons to government

(1) A person who is the holder of an agreement under the Forest Act or the Range Act or who meets the prescribed requirements may submit to the district manager a written declaration specifying

(a) obligations under this Act, the regulations or standards, or under an operational plan, permit or other authorization, that have been fulfilled, and

(b) any of the following things to which the fulfillment of the obligations is relevant:

(i) cutblocks and roads;

(ii) operational plans;

(iii) permits.

(2) The declaration under subsection (1) must

(a) be signed by the person referred to in that subsection or on that person's behalf by an individual or the individuals authorized in that regard, and

(b) specify the date on which the declaration is made.

108 Government may fund extra expense or waive obligation

(1) The minister must grant the relief described in subsection (3) to a person who has an obligation under this Act, the regulations, standards or operational plan, other than

(a) an obligation to establish a free growing stand, or

(b) a prescribed obligation, and

who satisfies the minister that

(c) because of an event causing damage, the obligation on the area cannot be met without significant extra expense than would have been the case if the damage had not occurred, and

(d) the person

(i) did not cause or contribute to the cause of the damage,

(ii) exercised due diligence in relation to the cause of the damage, or

(iii) contributed to the cause of the damage but only as a result of an officially induced error.

(2) The minister must grant

(a) the relief described in subsection (3), or

(b) the funding described in subsection (4)

to a person having an obligation to establish a free growing stand if the person satisfies the minister that

(c) because of an event causing damage, the obligation to establish the free growing stand cannot be met without significant extra expense than would have been the case if the damage had not occurred, and

(d) the person

(i) did not cause or contribute to the cause of the damage,

(ii) exercised due diligence in relation to the cause of the damage, or

(iii) contributed to the cause of the damage but only as a result of an officially induced error.

(3) The relief, that must be granted under subsection (1) or that may be granted under subsection (2) (a), from an obligation by the minister to a person is relief from

(a) the person's obligation to the extent only that the obligation cannot be met without significant extra expense related to the damage referred to in subsection (1) or (2), or

(b) the person's obligation in full if the minister considers that the remaining obligation, after taking paragraph (a) of this subsection into account, is inconsequential.

(4) The funding for an obligation, that may be granted under subsection (2) (b) by the minister to a person, is funding to the extent only that is required for the purpose of restoring the stand of trees on the area affected by the event referred to in subsection (2)

(a) to the stage the stand had reached at the time of the damage caused by the event, or

(b) to the stage that is consistent with an agreement between the person and the minister.

(5) A decision in any proceedings, that a person having an obligation referred to in subsection (1) or (2) did or did not do any of the things referred to in subsection (1) (b) or (2) (d), is binding on the minister.

(6) The minister may not under this section grant relief or funding in respect of an event causing damage if the event occurred before December 17, 2002.

(7) The Lieutenant Governor in Council may make regulations for the purposes of this section resolving any doubt as to what constitutes an event or as to when an event occurred.

Forest Planning and Practices Regulation (under FRPA)

86 Annual reports

(1) In this section and in section 86.1,

"location" means the approximate location;

"reporting period", in respect of the year in which the report referred to in subsection (2) is to be furnished, means the 12 month period beginning on April 1 of the immediately preceding calendar year;

"road construction" means the construction of a road, and includes bridges and major culverts;

"road construction during the reporting period" means road construction, that is carried on during any number of days in the reporting period, of a road that

(3) Before June 1 of each year, an agreement holder must report to the district manager

(a) for each area in which timber harvesting was completed during the reporting period and to which section 29 of the Act applies or to which section 44 (4) of this regulation applies the following information:

(i) the area in which the harvesting occurred;

(ii) the amount of area that was harvested;

(iii) an update of the forest cover inventory;

(iv) the location and approximate size of all associated wildlife tree retention areas,

(b) the location of any resource feature or wildlife habitat feature in or contiguous to a cutblock or road of which feature the holder is aware during the reporting period if

(i) the holder has not, in a previous reporting period, reported the resource feature or wildlife habitat feature, and

(ii) the order establishing the resource feature or wildlife habitat feature requires the location of the resource feature or wildlife habitat feature to be reported under this section,

(c) the pertinent information about seeds used during the reporting period to grow seedlings planted by holder in cutblocks on the land to which the agreement pertains,

(d) an update of the forest cover inventory for each area in which during the reporting period

(i) the requirements for the regeneration date have been met,

(ii) the requirements for the regeneration date have not been met but the regeneration date has passed,

(iii) a free growing stand has been declared under section 97 of this regulation, or

(iv) a free growing stand has not been established, but the free growing date has passed, and

(e) a summary of any silviculture treatments that were carried out during the reporting period.

(5) Before June 1 of each year, a timber sales manager must report to the district manager

(a) for areas harvested during the reporting period under

(i) a timber sale licence entered into under the Forest Act between the timber sales manager and its holder, or

(ii) a forestry licence to cut entered into under the Forest Act between the timber sales manager and its holder,

the information referred to in subsection (3) (a) and (b) of this section, and

(b) for areas in which the timber sales manager establishes free growing stands as required under section 29 (2) of the Act, the information referred to in subsection (3) (c), (d) and (e) of this section.

(6) Information required under this section must be reported in a form and manner that is satisfactory to the minister.

86.1 Exemptions respecting the annual reports

(1) Despite section 86, information as to an update of the forest cover inventory need not be reported in accordance with subsections (3) (d) and (5) of that section if that information has previously been furnished under section 97.

(2) Despite section 86, on or before December 31, 2005, an agreement holder and the timber sales manager must furnish to the district manager the information respecting road construction and deactivation for the period between April 1, 2003 and March 31, 2005 that is referred to in section 86 (2) unless

(a) for road construction, the information has been reported previously under section 8 (3) of the Forest Road Regulation, or

(b) for road deactivation, the information has been shown previously on a forest development plan.

(3) Section 86 (3) (a) and (5) (a) does not apply to a cutblock of less than 1 ha unless

(a) the cutblock is immediately adjacent to another cutblock of less than 1 ha, and

(b) the combined area of both cutblocks exceeds 1 ha.

86.2 Annual report requirements inapplicable to certain agreements

Sections 86 and 86.1 do not apply to

(a) the holder of a forestry licence to cut entered into under the Forest Act between the timber sales manager and the holder of the licence to cut, or

(b) the holder of

(i) a timber sale licence if eligibility was restricted to one or more categories of BC timber sales enterprises, or

(ii) a road permit associated with a timber sale licence referred to in subparagraph (i)

entered into under the Forest Act between

(iii) the district manager and the holder of the licence or permit, or

(iv) the timber sales manager and the holder of the licence or permit.

87 Site specific standards

(1) On or before furnishing a report referred to in section 86 (3) (a) for an area to which section 29 (1) of the Act applies, an agreement holder must submit to the district manager a map indicating standards units and the standards that apply to them.

(2) On or before furnishing a report referred to in section 86 (3) (a) for an area to which section 29 (2) of the Act applies, a timber sales manager must submit to the district manager a map indicating standards units and the standards that apply to them.

(3) If, after submitting the map referred to in subsection (1) or (2), a timber sales manager or an agreement holder changes

(a) a standards unit, or

(b) the standards that relate to the standards unit,

the timber sales manager or the holder must prepare and submit to the district manager on the applicable date under subsection (4) a further map describing the changes.

(4) For the purposes of subsection (3), the applicable date

(a) for change made before planting seedlings is the date on which information described in section 86 (3) (c) is to be furnished;

(b) for changes made after planting seedlings but before the regeneration date is the date on which information described in section 86 (3) (d) (i) or (ii), is to be furnished, and

(c) for changes made after the regeneration date but before the free growing date, is the date on which information described in section 86 (3) (d) (iii) or (iv) is to be furnished.

(5) For cutblocks in which the minister must establish a free growing stand under section 46, the minister must prepare and retain a map indicating standards units and the different standards that apply to them, including any changes to them.

88 Silviculture treatment records

(1) If an agreement holder carries out a silviculture treatment on an area to which section 29 (1) [free growing stands] of the Act applies, the holder must maintain records of the silviculture treatment until the earlier of

(a) 15 months after a declaration has been made under section 97 of this regulation in respect of a free growing stand being established on the area, and

(b) a date specified by the district manager.

(2) If a timber sales manager carries out a silviculture treatment on an area to which section 29 (2) of the Act applies, the timber sales manager must maintain records of the silviculture treatment until a free growing stand is established on the area.

(3) If the minister carries out a silviculture treatment on an area to which section 46 applies, the minister must maintain records of the silviculture treatment until a free growing stand is established on the area

97 Declarations

(1) In this section, "treatments" means silviculture treatments that

(a) are brushing treatments or juvenile spacing treatments, and

(b) were carried out during the 16th or any subsequent year after the applicable commencement date.

(2) For the purpose of section 107 (4) (a) of the Act, the prescribed period is 15 months.

(3) A person may make a written declaration under section 107 of the Act for a cutblock to which section 44 (4) or 46.1 (2) of this regulation applies no earlier than 12 months after the completion of harvesting on the area of the cutblock.

(4) A person who makes a declaration under section 107 of the Act in respect of the establishment of a free growing stand is exempt from the requirements of subsection (5) of that section.

(5) Subject to subsection (3) of this section, and without limiting section 107 of the Act, a person who is required to establish a free growing stand under

(a) section 44, 45, 46.1 (2) or 46.2 (5) of this regulation, or

(b) section 29.1 of the Act

may make a written declaration under section 107 of the Act that a free growing stand has been established on a cutblock at any time after the applicable free growing height and stocking standards have been met.

(6) A stand on an area that is the subject of a written declaration under section 107 of the Act is not free growing on the date of the declaration, if

(a) it is more likely than not that 20 years after the applicable commencement date, the stand

(i) will not conform to the applicable stocking standards, or

(ii) will be impeded in its growth because of adverse effects on the area

because of the effect on the area of forest health factors or competition from plants, shrubs or other trees, or

(b) it is more likely than not that 5 years after completion of the last of the brushing or spacing treatments on the stand that were carried out more than 15 years after the applicable commencement date the stand

(i) will not conform to the applicable stocking standards, or

(ii) will be impeded in its growth by competition from plants, shrubs or other trees

because those treatments were ineffective or had an adverse effect on the stand.

(7) A written declaration under section 107 of the Act to the effect that the requirements for the regeneration date or free growing date on an area have been met in respect of an area must include or incorporate by reference a current forest cover inventory for the area.

Woodlot Licence Planning and Practices Regulation (under FRPA)

76 Annual reports

(1) The chief forester may specify

- (a) the form of an annual report required under this section, and
- (b) the information that is to be included in an annual report under this section.

(2) A woodlot licence holder must submit to the minister, on or before April 30 each year, an annual report in accordance with the requirements of subsection (1).

(3) In addition to the information required under subsection (1) (b), a woodlot licence holder must include with the annual report information respecting the following matters that occurred during the period to which the annual report applies:

- (a) a copy of any amendment that was made under section 20 (1) of the Act, unless the holder had previously provided a copy of the amendment to the minister;
- (b) a copy of any amendment to the wildlife tree retention strategy made under section 11;
- (c) a map describing the location of any area that has been the subject of one or more of the following:
 - (i) a transfer under section 29.1 (3) of the Act;
 - (ii) an exemption under section 78 or 79;
 - (iii) a declaration under section 107 of the Act that an obligation has been completed;
 - (iv) relief being granted under section 108 of the Act;
- (d) the approximate location of any resource feature or wildlife habitat feature contiguous to a cutblock or road that the holder became aware of, if
 - (i) the holder has not previously reported the resource feature or wildlife habitat feature, and
 - (ii) the order establishing the resource feature or wildlife habitat feature requires the location of the resource feature or wildlife habitat feature to be reported under this section.

84 Declarations

(1) A woodlot licence holder may make a declaration under section 107 [limitation on liability of persons to government] of the Act that a free growing stand has been established on a cutblock at any time before the date referred to in section 34 [free growing stands] if the stand

- (a) has met the free growing height that relates to the area, and
 - (b) is not under threat from
 - (i) competing plants, shrubs or other trees established on the area, or
 - (ii) insects, disease or other factors adverse to forest health in the area.
- (2) A person may make a declaration under section 107 [limitation on liability of persons to government] of the Act in respect of a cutblock referred to in section 35 (2) [conforming to stocking standards] no earlier than 12 months after the completion of harvesting on the area.
- (3) A woodlot licence holder who makes a declaration under section 107 of the Act that the requirements for the regeneration date or free growing date on an area have been met must include with the declaration a forest cover inventory for the area to which the declaration applies.
- (4) The prescribed period for giving a notice to a woodlot licence holder under section 107 (3) of the Act is 15 months.

Timber Harvesting and Silviculture Practices Regulation (under the FPC)

45 Reporting requirements for areas without regeneration objectives

A holder of an agreement under the Forest Act who has not been exempted from the requirement to prepare a site plan on an area and who carries out timber harvesting on the area where

- (a) there are partial cutting stocking requirements that do not require regeneration, or
- (b) the harvesting is limited to commercial thinning, harvesting of poles, sanitation treatments and other intermediate cuttings that do not have regeneration objectives,

must submit to the district manager

- (c) on or before May 31 each year, for areas harvested in the preceding year ending March 31 and not yet reported, a report providing the information required in Forms A and B, and a map identifying the standards units on the area, and
- (d) during the period between 12 months and 24 months after the completion of harvesting on the area, a report, on Form C, with a map containing the information referred to in section 48 (1) (a) to (h).

46 Format and timing of reporting

A holder of an agreement under the Forest Act who is required to establish a free growing stand on an area must submit to the district manager, on or before May 31 each year, the following reports:

- (a) for cutblocks where harvesting was completed for the entire cutblock in the preceding year ending March 31, the completion of harvesting has not yet been reported, and the allowable annual cut is on a volume basis, a report including
 - (i) Form A identifying the standards that apply to the area contained in a forest development plan,
 - (ii) Forms B and C, and
 - (iii) a map containing the information referred to in section 48(1) (a) to (h);

(a.1) for areas within a cutblock that are subject to an area based allowable annual cut and that were harvested to any extent in the preceding calendar year, a report including the information referred to in paragraph (a);

(b) for areas within a cutblock that are completely harvested and that have received silviculture treatments in the preceding year ending March 31, a report in Form B describing the silviculture treatments and area treated;

(c) for areas which have met the regeneration date stocking requirements during the preceding year ending March 31, a report in Form C with a map containing any changes in the information referred to in section 48 (1) (a) to (h) from that which was submitted under paragraph (a);

(d) for areas which have met the free growing stocking requirements during the preceding year ending March 31, a report in Form C with a map containing any changes in the information referred to in section 48 (1) (a) to (h) from that which was submitted under paragraph (c).

47 Minister may establish requirements

(1) The minister, with respect to the reports referred to in section 45 or 46, may

(a) require Forms A, B and C and associated maps to be electronically submitted to the ministry,

(b) specify the format of the electronic data submission, and

(c) establish guidelines for silviculture surveys and the content and accuracy of the information to be submitted on maps, Forms A, B, and C or alternate approved forms.

(2) Despite section 45 or 46, if under subsection (1) the minister

(a) requires a form to be electronically submitted, or

(b) specifies the format and content of the submission,

the holder of an agreement under the Forest Act who is required under this section to submit data or prepare a map must do so in accordance with the requirements or specifications.

48 General mapping requirements

(1) A map referred to in sections 45 (d) and 46 (a), (c) and (d) must be an accurate map of the cutblock area and must describe

(a) areas occupied by permanent access structures,

(b) areas of rock, wetland or other area that in the area's natural state is not capable of supporting a stand of trees that meets the stocking requirements referred to in section 18.1 of the Operational and Site Planning Regulation,

(c) areas of non-commercial forest cover that are indicated on an operational plan or in the prescribed manner as not requiring the establishment of a free growing stand,

(d) areas indicated on an operational plan or in the prescribed manner as a reserve area not requiring the establishment of a free growing stand,

(e) the location of each standards unit within the cutblock and the standards identification number linking each standards unit to the stocking requirements contained in Form A,

(f) Repealed. [B.C. Reg. 292/2003, effective August 5, 2003]

(g) the mappable reserves within or contiguous to the cutblock, and

(h) the forest cover polygons within the cutblock.

(2) Areas referred to in subsection (1) (c) are areas of non-commercial cover indicated in the prescribed manner for the purposes of paragraph (b) (iii) of the definition of "net area to be reforested" in section 1 (1) of the Act.

(3) Areas referred to in subsection (1) (d) are reserve areas indicated in the prescribed manner for the purposes of paragraph (b) (iv) of the definition of “net area to be reforested” in section 1 (1) of the Act.

Woodlot Licence Forest Management Regulation (under the FPC)

88.1 Free growing declarations

(1) The holder of a woodlot licence must not make a declaration under section 162.1 of the Act that an obligation to establish a free growing stand has been met unless the stand of trees

(a) meets the requirements of section 78, if the area is under a site plan, or

(b) meets the requirements of section 70 (4) (e) of the Act and section 81 of this regulation, if the area is under a silviculture prescription.

(2) For the purposes of section 162.1 (6) of the Act, for areas under a silviculture prescription, the stand must be within the “free growing assessment period” as defined in section 70 (1) of the Act.

(3) Despite section 162.1 (2) of the Act, a declaration under that section may be signed by the holder of a woodlot licence or a person who has authority to sign on behalf of the holder.

(4) For the purposes of section 162.1 (3) of the Act, the prescribed period is 15 months.

(5) A holder of a woodlot licence is exempt from the requirements of section 162.1 (5) of the Act.

(6) A holder of a woodlot licence who makes a declaration under section 162.1 (1) of the Act in relation to an obligation to establish a free growing stand on an area where a brushing treatment has been carried out, remains responsible for the obligation unless, at the time of the declaration, the period since the brushing treatment was carried out is

(a) a minimum of

(i) 2 years for a chemical brushing treatment, and

(ii) 3 years for a manual brushing treatment

in the SBS or the BWBS, or

(b) a minimum of 2 years for any brushing treatment in biogeoclimatic zones other than the SBS or the BWBS.

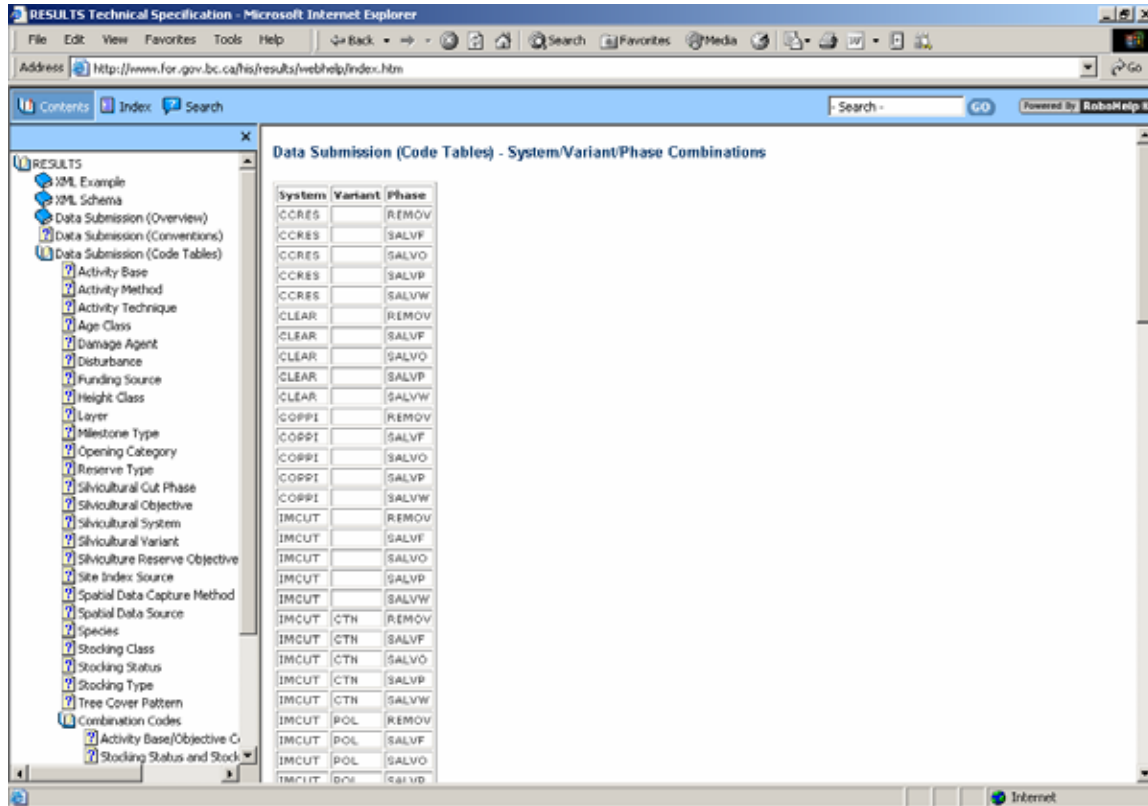
(7) The district manager may authorize a shorter period than specified in subsection (6) (a) or (b).

89 Reporting obligations

A holder of a woodlot licence must submit to the district manager, on or before April 30 each year, an annual report in the form, and with the content, required by the chief forester.

Appendix C: Code Lists

For the most up to date code list and code combinations please visit the RESULTS online technical documentation at: <http://www.for.gov.bc.ca/his/results/webhelp/index.htm>.



The screenshot shows a web browser window titled "RESULTS Technical Specification - Microsoft Internet Explorer". The address bar shows the URL "http://www.for.gov.bc.ca/his/results/webhelp/index.htm". The page content is titled "Data Submission (Code Tables) - System/Variant/Phase Combinations". On the left, there is a navigation tree with "Data Submission (Code Tables)" selected. The main content area displays a table with three columns: "System", "Variant", and "Phase". The table lists various combinations of codes for different systems and phases.

System	Variant	Phase
CCRES		REMOV
CCRES		SALVF
CCRES		SALVO
CCRES		SALVP
CCRES		SALVW
CLEAR		REMOV
CLEAR		SALVF
CLEAR		SALVO
CLEAR		SALVP
CLEAR		SALVW
COPPI		REMOV
COPPI		SALVF
COPPI		SALVO
COPPI		SALVP
COPPI		SALVW
IMCUT		REMOV
IMCUT		SALVF
IMCUT		SALVO
IMCUT		SALVP
IMCUT		SALVW
IMCUT	CTN	REMOV
IMCUT	CTN	SALVF
IMCUT	CTN	SALVO
IMCUT	CTN	SALVP
IMCUT	CTN	SALVW
IMCUT	POL	REMOV
IMCUT	POL	SALVF
IMCUT	POL	SALVO
IMCUT	POL	SALVP