



**Ministry of Forests, Lands and Natural
Resource Operations**

RESULTS INFORMATION SUBMISSION
SPECIFICATIONS

Form and Manner of Reporting
(Woodlot Licensee Submissions)

3rd Edition

February 24, 2016

Foreword

The first edition which described Woodlot Licence information submission specifications was published in March 2007 as the *Woodlot Licensee Guide to the submission of Silviculture Reporting Requirements to RESULTS via the Electronic Submission Framework (ESF)*. Version 2.0 revisions are based on user questions, reviewer feedback and on changes made to the RESULTS application since that time. It also strives to provide greater clarity around Forest Cover submission requirements, minimum polygon sizes and partial cuts.

This document contains mostly information submission specifications; that is, specifications pertaining to what is required in a given electronic submission or submission entry field. For more details on business requirements and “how to”, users can access specific topic related training modules on the RESULTS web site.

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1. Application

This document provides the technical specifications for information reported to the RESULTS system by Woodlot Licencees.

These specifications apply to Woodlot Licencees where there is:

1. An obligation to establish a free-growing stand in accordance with the *Forest and Range Practices Act* (FRPA) s. 29(3) to submit silviculture reports in accordance with the *Woodlot Licence Planning and Practices Regulation* (WLPPR) s. 76; application for relief or funding in accordance with WLPPR s. 83, and declarations in accordance with WLPPR s. 78.
2. An outstanding obligation to establish a free-growing stand in accordance with the *Forest Practices Code of British Columbia Act* (FPCBC), s. 69.1 and 70, and who submits silviculture reports in accordance with the *Woodlot Licence Forest Management Regulation* (WLFMR) s. 88, 88.1, and 89 and the *Timber Harvesting and Silviculture Practices Regulations* (THSPR) s. 46, 47 and 48.

It is the policy of the *Ministry of Forests, Lands and Natural Resource Operations* (FLNRO) that openings managed under FPCBCA, submitted in accordance with FRPA and the specifications of this document, are deemed to have met FPCBCA reporting requirements.

2. Purpose

These specifications provide direction on the form and manner, or format, of electronic submissions of silviculture reporting obligations by describing the electronic content requirements for reports and maps on silviculture obligations, and precision standards for silviculture and mapping submissions.

3. Electronic Submissions

The Electronic Submission Framework (ESF), is used by MFLNRO clients and staff to submit data. Information on Electronic Forest management (e-FM) is found at <http://www.for.gov.bc.ca/his/efm/index.htm>.

3.1 Help and Support

On-line support documentation and contact information for RESULTS can be found at <http://www.for.gov.bc.ca/his/results>.

3.2 Access

Access to the electronic submissions applications is secured through one of two accounts according to employer. Private sector personnel use British Columbia Electronic Identification (BCeID) accounts. To receive access, a user must be authorized by the client signatory and/or the ministry.

Please review the user access policy prior to requesting access to RESULTS. The MFLNRO policy on user access is at <http://www.for.gov.bc.ca/his/results/access.htm#policy>. The on-line RESULTS access form is at <http://www.for.gov.bc.ca/his/results/access.htm>.

3.3 Accountability

Licensees are accountable for e-submissions to RESULTS and should ensure that individuals submitting information on their behalf are authorized by the license holder (or someone authorised by the license holder in that regard) and that the information being submitted has been collected and prepared by qualified professionals (e.g., Registered Forest Professionals).

A BCeID and password is considered an electronic signature of an individual authorised by the licensee to submit data on behalf of the licensee. A document that is submitted and approved electronically is considered to be an official document, provided it meets regulatory requirements and is submitted by an authorised individual.

Documents¹ prepared by qualified professionals that are the basis of the data in e-submissions, may be attached as pdf files to the e-submission and/or retained on the licensee file.

3.4 Preparing Submissions

Electronic submissions are processed through:

- Licensee information systems and specialized tools that create the electronic format required for ESF submissions to RESULTS;
- Service providers who prepare and submit on behalf of a licensee;
- RESULTS online entry where openings consist of one SU, allowing the use of the “Copy Exhibit A” functionality to insert spatial;
- For information updates where spatial data is not required.

3.4.1 Spatial and attribute formatting structure (schema)

Attribute and spatial data are integrated in RESULTS ESF submissions. This minimizes interpretation errors in relating the spatial with the attribute data. The format is structured to contain data about individual features (e.g., an opening and attributes) and data about how the features relate to one another. A formatting structure for a given report type is referred to as a “schema”.

Details for how to prepare and submit reports are available at: <http://www.for.gov.bc.ca/his/esf> or <http://www.woodfor.com/WLGML/>.

Technical specifications describing the data structure and validation rules of RESULTS submissions are at <http://www.for.gov.bc.ca/his/Results/techDocs.htm>.

¹Documents containing professional opinion or assessments, that support the submission data (including electronic documents), and that are signed and sealed by a Licensed Forest Professional. (e.g., reports on forest inventory, classification, management, harvesting, silviculture surveys and treatments, and professional assessments [e.g., terrain, stream, archaeological.]).

3.4.2 XML and GML

Any given RESULTS electronic report is comprised of schema that contains XML and GML² components. Spatial data (map) is configured in geographic mark-up language (GML³); attribute (alpha-numeric text) data is extensible mark-up language (XML⁴; i.e., <submission_file.xml>).

Information on configuring XML data is at <http://www.for.gov.bc.ca/his/results/webhelp/index.htm>.

3.4.3 Rejected Submissions

RESULTS may reject submissions that are not configured according to required schema, or if errors are encountered through the system's validation checks. An error message is included with a rejection notification. Click the hyperlinked error message identification number or navigate to the technical documentation (<http://www.for.gov.bc.ca/his/results/webhelp/index.htm>) to view a description of the error, and possibly a recommended solution.

MFLNRO staff may review or inspect submissions after they have been accepted by RESULTS to determine if they meet legislative requirements and information submissions specifications.

² For submissions that require a spatial component.

³ **GML standards** are defined by *Open Geospatial Consortium* (<http://www.openings.net/gml/>).

⁴ **XML standards** are defined by *World Wide Web Consortium* (<http://www.w3.org/XML/>).

4. Silviculture and Land Status Reports

4.1 Opening Life Cycle and Required e-Submissions

Throughout the opening lifecycle from the initial disturbance until a forest stand reaches free-growing status, licensees are required to submit opening updates to the MFLNRO (e.g., stocking standards, silviculture activities, forest cover, amendments and declarations). Timing of these submissions is generalized in Table 1.

Table 1: Generalized opening lifecycle and related e-Submission for Woodlot Licensees

Submission Type	Mandatory (Y/N)	Approximate Timing	Spatial Data Required	Description
Opening Definition	Yes	Following Harvest Completion Following Amendments Or by Annual Report deadline	Yes	Contains the core components of the site plan document including tenure, permanent access %, standard units, stocking standard regime. The opening must be created in RESULTS prior to any activity submissions.
Disturbance	Yes	Upon Harvest Completion or Annually	Optional	Identifies key harvesting information including silviculture system, area, start/end dates, tenure. Activity spatial is optional but forest cover update is mandatory upon completion of disturbance activity.
Silviculture Activity	Yes	Upon Activity Completion or Annually	Optional	Identifies silviculture activity, objective, date, funding source, treatment area.
Forest Cover	Yes	Forest cover must be submitted at: Harvest Completion Free Growing Declaration Regen Declaration (when required or volunteered)	Yes	Identifies inventory and silviculture labels as well as damage agents. Supports milestone declaration.

4.2 General Content Format

A submission can contain more than one opening, and each opening can contain more than one report (opening definition, disturbance, silviculture activity, forest cover polygon, or milestone declaration). Submission components vary depending on the type of report. The elements shown are common to all RESULTS reports.

Table 2: Information common to all RESULTS reports

Submission Header	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, of the person making the submission. A service provider who prepares a submission on behalf of a licensee provides the licensee contact information.
Submission Content	A name and description of the submission (a folder containing the RESULTS metadata and openings).
RESULTS Metadata	General information about the RESULTS submission. Includes the district code, ministry client code, client location code (identifies 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 validated, not uploaded). The ministry client code and client location codes are assigned by the ministry and can be viewed in RESULTS on any existing opening or by searching the client field.
Opening	Information about the opening for a given submission including opening key, opening definition, disturbance, silviculture activity, forest cover polygons, and milestones. One or more openings may be included per submission, and one or more opening items may be included per opening.

4.3 Opening Key

The opening key identifies an opening in an XML/GML submission and links the current report to the correct opening in the RESULTS database.

No spatial data are included with this component of a report. The tenure information stored in FTA and the opening information in RESULTS are not linked spatially.

There are four opening keys:

- File (Tenure),
- Timber Mark,
- Opening Number, and
- Opening ID.

Initial opening submissions for tenured openings require either the **File** or **Timber Mark**. This is to verify that the tenure exists in FTA in order to create the associated opening in RESULTS.

The **Opening ID** is auto-generated when an opening is created in RESULTS. It is therefore not available for use until an initial opening definition submission has been successfully uploaded to RESULTS. Subsequent submissions to RESULTS can use the file, the timber mark, the opening number, or the opening id.

4.3.1 Attribute Data

One opening key (file, timber mark, opening number, or opening ID) is required per report. More than one opening key can be included in a report, provided that they refer to the same opening. Field specifications are listed in Table 3.

Table 3: Opening key field specifications (Opening/cut block identifiers)

Field	Required ⁵	Description and Conditions
TENURE KEY (conditional)		
Consists of Licence Number, Cutting Permit <u>and</u> Cutblock. Required for new submissions. Not required if Timbermark Key is used.		
License Number	yes	Licence number of the opening corresponding to the cutting authority. E.g., TLF49; A19204; W0012.
Cutting Permit	conditional	Cutting permit for the opening corresponding to the licence in the cutting permit document. Include for new submissions if a cutting permit exists for the opening.
Cutblock	yes	Approved cutblock identifier for the opening as on the legal Exhibit A document. No leading zeros (unless the zeros exist in FTA). Special characters and spaces not recommended (e.g., -, /, _, *). E.g., 1002LM
TIMBERMARK KEY (conditional)		
Consists of Timbermark <u>and</u> Cutblock. Required for new submissions. Not required if Tenure Keys is used.		
Timbermark	yes	Timbermark for the opening as shown on the legal documents, e.g., Examples: FT8675; 67801.
Cutblock	yes	See description for Cutblock under Tenure Key above.

⁵ Required fields are for the Opening Key

OPENING NUMBER KEY (conditional)		
Consists of mapsheet components <u>and</u> opening number. Assigned during the first submission to RESULTS. Depending on district preferences, opening numbers are automatically assigned by RESULTS or manually assigned by district staff. Once an opening number has been assigned to an opening, that number can be used as the opening key for future submissions to RESULTS.		
Mapsheet Grid	yes	Mapsheet grid number of the NTG or BCGS grid. e.g., 082; 083; 113; 114.
Mapsheet Letter	yes	Mapsheet letter of the NTG or BCGS grid. e.g., A-P and W.
Mapsheet Square	yes	BCGS number or NTG number and letter. BCGS numbers are 1-100, and NTG numbers and letters are 1-16 and A-H and W respectively.
Mapsheet Quadrant	conditional	Blank if NTG number/letter entered and 0-4 if BCGS number entered.
Mapsheet Subquadrant	conditional	Blank if NTG number/letter entered and 0-4 if BCGS number entered.
Opening Number	yes	Unique identifier that describes an opening on a specified mapsheet.
OPENING ID KEY (optional)		
Assigned during the first submission to RESULTS. May be used instead of Tenure Key, Timbermark Key, or Opening Number Key for subsequent submissions.		
Opening ID	yes	Unique identification number generated automatically by RESULTS. Assigned to an opening when the first submission for that opening is made. Used to uniquely identify a harvest entry. For example, if the opening had a first pass harvest in 1975, and a second pass harvest in 2000, each harvest entry would have a different opening ID. This allows obligations related to each harvest entry to be tracked separately. e.g., 61100; -33717000; 9528

4.3.2 RESULTS and FTA

A cutblock **must** exist in FTA in approved cutblock status before its corresponding opening definition is accepted by RESULTS.

The opening tenure key or the opening timbermark key must be identical to the tenure/timbermark information in FTA, or an error is generated, and the submission is rejected.

4.3.3 New Submissions to RESULTS

When openings are submitted to RESULTS for the first time (i.e., the opening did not previously exist in the RESULTS database), **either** the tenure key **or** the timbermark key is used. The key must match exactly with the cutblock identifiers in FTA.

If the tenure or timbermark key does not match the format in FTA, an error is generated and the submission is rejected. For example, if the cutblock in FTA is identified as PY1B, the ESF will reject a RESULTS report that refers to the opening's cutblock identifier as PY1-B or PY 1B. If a RESULTS submission is continually rejected because a cutblock is not found in FTA, contact the FLNRO District RESULTS Coordinator. The district contact list can be viewed at: <http://www.for.gov.bc.ca/ftp/his/external!/publish/results/Regions-Districts-Contacts.pdf>.

4.3.4. Subsequent Submissions to RESULTS

If the opening already exists in RESULTS, subsequent submissions to RESULTS can use the opening tenure key, the opening timbermark key, the opening number key, or the opening id key.

4.4 Opening Definition Report

The opening definition report contains descriptive information about the cutblock and information relating to reforestation standards including previous stand information, maximum allowable permanent access percentage, and standard unit (SU) information. Any opening that is part of a multi-tenure cutblock is identified in the opening definition. The opening definition includes attribute and spatial data.

4.4.1 Opening Size and Report Requirements

Licencees are required to report to RESULTS any opening **0.25 ha or greater in size** where a licensee obligation to establish a free-growing stand exists per WLPPR. RESULTS will accept an opening size to a minimum of 0.1 ha.

4.4.2 Timing

An opening definition report is required with, or before, the first RESULTS submission for an opening (i.e., after completion of harvest), and may be submitted thereafter to update previously submitted information. This report normally accompanies a disturbance report before April 30 for all areas on which harvesting⁶ occurred in the previous calendar year.

4.4.3 Attribute data

A single opening definition identifies the entire opening. An opening definition can contain multiple SUs, each with their own attribute and spatial information. A given opening may have more than one tenure with attribute information. Field requirements are shown in Table 4.

⁶ Including areas, with no regeneration obligations, subject to partial-cutting, partial retention, or intermediate harvest (e.g., commercial thinning)

Table 4: Opening definition general field requirements

Field	Required	Description and Conditions
Action	Yes	<p>Code that identifies the purpose of the opening definition report.</p> <p>I – Insert (for new opening definitions submitted for the first time)</p> <p>U – Update (for correcting existing opening definition data. <u>All</u> existing opening definition data is deleted and replaced with the corrected data. Users supply <u>all</u> information for all components of the opening definition.</p> <p>O – Opening Amalgamation (for proposing amalgamations in the XML document)</p> <p>V – Variation (for including a previously approved WLP variation to a stocking standard regime associated to a standard unit)</p> <p>A – Amendment (Major) (for major amendments to silviculture prescriptions that require FLNRO approval; also used for Site Plan Amendments that do not require FLNRO approval).</p> <p>M – Amendment (Minor) for minor amendments (per PCBCA 42.0, and WLFMR 24/1) to silviculture prescriptions that do not require FLNRO approval.</p>
Opening Gross Area	Yes	<p>The total area of the opening inclusive of all SUs (NAR), roads, reserves, and non-productive areas.⁷</p> <p>For group selection silvicultural system, include the entire area managed as an uneven-aged stand including unharvested areas (next pass) and previously harvested areas.</p> <p>All roads inside an opening must be reported. There are two ways to report roads: 1) mapped polygon with spatial and attributes data or; 2) unmapped polygon with attributes data only.</p> <p>Include the area of a reserve located on the perimeter of a block.</p> <p>Include external reserves.</p> <p>Exclude a natural, non-productive area located on the perimeter of a block.</p>

⁷ For openings associated with silviculture prescriptions under the former FPCBCA, opening gross area was known as “total area under the prescription”.

Field	Required	Description and Conditions
Licensee ID	Optional	An ID supplied by the Licensee to identify the opening or cross reference to Licensee records.
Opening Category	Yes	Code indicating who holds the obligation and the extent and nature of the obligation. See Appendix B to locate Opening Category Code list. e.g., FTWL-Forest Tenure Woodlot Licensee; NDFS – Natural Disturbance – Forest Service.
Opening Location Name	Optional	Identifies the location name of the opening, e.g., Petersen Creek; Foresters Mountain.
Previous Stand Type	Yes	Code that identifies the previous stand type, from the previous forest cover inventory label of the largest polygon in the opening. See Appendix B to locate Stand Type Code List. e.g., MAT – mature stands; IMM – immature stands.
Previous Species 1	Yes	Code that identifies the dominant species of the stand before harvest, from the previous forest cover inventory label of the largest polygon in the opening. See Appendix B to locate Species Code list.
Previous Species 2	Conditional	Code that identifies the second major species of the stand before harvest in a multi-species stand, from the previous forest cover inventory label of the largest polygon in the opening. Required if more than one major species was present in the previous stand label. See Appendix B to locate Species Code list.
Previous Age Class	Yes	Code indicating the age class of the previous stand type, from the previous forest cover inventory label of the largest polygon in the opening. Age classes are intervals, or ranges, of ages into which trees, forests, stands, or forest types are classified. See Appendix B to locate Age Class Code list.
Previous Height Class	Yes	Code indicating the height class of the previous stand, from the previous forest cover inventory label of the largest polygon in the opening. Height classes represent intervals into which the range of tree or stand heights are classified. See Appendix B to locate Height Class Code list.
Previous Stock Class	Yes	Code indicating previous stocking class of stand, from the previous forest cover inventory label of the largest polygon in the opening.

Field	Required	Description and Conditions
		See Appendix B to locate Stock Class Code list. e.g., 1 – stock class 1; 2 – stock class 2;
Previous Site Index	Yes	The site index of the leading tree species in the previous stand, from the previous forest cover inventory label of the largest polygon in the opening. Estimates forest land productivity. Enter the projected average height, in metres, of the leading species of the forest cover label at 50 years.
Previous Site Index Source	Yes	Code that describes the source or origin of the previous site index, from the previous forest cover inventory label of the largest polygon in the opening. See “11. Selecting a method to estimate site index” on the FS 660 (http://www.for.gov.bc.ca/isb/forms/lib/FS660.PDF) See Appendix B to locate Site Index Source Code list. e.g., C – site index from site index curve; H – site index from stand before harvest.
Maximum Allowable Permanent Access Percentage	Yes	The maximum percentage of the gross area of the opening that can be occupied by permanent access structures. Includes roads, landings, gravel pits, burrow pits, and permanent trails. Default value is 7.0%.
Site Plan Exemption	Yes	Values of either Y (yes) or N (no). Set the value to ‘Y’ if the opening is a silviculture prescription (Forest Practices Code of BC Act), and set to ‘N’ if the opening is a site plan (Forest and Range Practices Act).
Tenure	Yes	See Table 5.
Standards	Yes	See Table 6.

4.4.3.1 Tenure Attributes

Table 5: Tenure Field Requirements

Field	Required	Description and Conditions
Licence Number	Yes	Licence number of the opening (or or a portion of the opening) corresponding to the cutting authority.

Field	Required	Description and Conditions
Cutting Permit	Conditional	Cutting permit for the opening (or portion of the opening) corresponding to the licence in the cutting permit document. Required if a cutting permit applies to the opening.
Cutblock	Yes	Approved cutblock identifier for the opening (or portion of the opening). Special characters are not recommended (e.g., -, /, _, *).
Is Prime Licence	Yes	Value of Y (yes) or N (no). Set to 'Y' for the primary tenure (i.e., the managing tenure) of the opening, and set to 'N' for the secondary tenure(s) within the opening.

4.4.3.2 Standards

Table 6: Standards Unit Field Requirements

Field	Required	Description and Conditions
SU	Yes	A licensee assigned identifier for the Standards Unit. e.g., 1, 2, 3; or A, B, C.
Net Area	Yes	Net area of the SU (i.e., not including roads, reserves, non-productive areas). Greater than zero. Sum of all SU net areas cannot exceed opening gross area. For roadside harvest operations, the portion of roadside work areas located outside the road prism is included in the net area to be reforested (NAR) and not in the estimate of the area occupied by permanent access structures.
BGC Zone	Yes	Biogeoclimatic zone of the SU, according to the Biogeoclimatic Ecosystem Classification (BEC) system, e.g., IDF; MS; CWH.
BGC Sub-zone	Yes	Biogeoclimatic sub-zone of the SU, according to the BEC system. e.g., dk; xc; mk.
BGC Variant	Conditional	Biogeoclimatic sub-zone variant, according to the BEC system. Include if BEC variant applies to the SU. e.g.; 1; 2.
BGC Phase	Conditional	Biogeoclimatic phase, according to the BEC system. Include if BEC phase applies to the SU.
BGC Site Series	Yes	Site series for the given biogeoclimatic unit, according to the BEC system. Corresponds to the ministry site series numbers.

Field	Required	Description and Conditions
		See http://www.for.gov.bc.ca/hre/becweb/ and http://www.for.gov.bc.ca/his/results/business.htm#BEC_Codes . e.g.; 01; 04; 05.
BGC Site Seral	Conditional	Seral type for certain site series, according to the BEC system. Include if a BEC seral type applies to the SU. See http://www.for.gov.bc.ca/hre/becweb/ .
BGC Site Type	Conditional	Site type of the given site series, according to the BEC system. Include if BEC site type applies to the SU.
Maximum Allowable Soil Disturbance Percentage	Yes	Maximum percentage of the soil surface which can be disturbed in the course of harvesting or silviculture activities. Greater than or equal to zero. If not submitted, defaults to 5.0% for new SUs.
Standards ID (SSID)	Conditional	A number that relates to an approved set of stocking standards contained in either a forest development plan (FDP) or a forest stewardship plan (WLP). Can be blank when Site Plan Exempt field is set to 'Y'; otherwise required. FDP stocking standards conforming to pre-FRPA legislative requirements continue to be submitted to RESULTS through the current "Standards Proposal" tool. See http://www.for.gov.bc.ca/his/results/business.htm#WLP_Procedures .

4.4.3.3. Stocking Standards ID

Only approved Stocking Standards Ids are available in RESULTS for assignment to standards units. These include:

- provincial defaults
- district defaults
- standards approved under a Woodlot Licence Plan

Once a stocking standards ID (SSID) is applied to a standard unit, all data elements associated with the SSID will automatically populate the standard unit in RESULTS.

Use approved WLP standards or use provincial default standards that can be accessed via the RESULTS Standards Admin under the Admin tab.

4.4.3.4 Previous Stand Label

The previous stand label fields include Previous:

Stand Type, Species 1, Species 2, Age Class, Height Class, Stock Class, Site Index, and Site Index Source.

Report the previous forest cover inventory label information, unless better information is available (e.g., pre-harvest survey or timber cruise) for the previous stand label fields. No new survey information is required for these fields. If the opening has more than one existing forest cover label, use the label from the largest polygon in the opening.

4.4.3.5 Additional Disturbances

Disturbances such as wildfires periodically impact existing openings. Licensees may amend existing site plans or silviculture prescriptions, or create new site plans (to replace the previous ones), to ensure that the stocking standards for the SUs are appropriate for managing the disturbed site. Updated disturbance, silviculture activity and forest cover reports are submitted for the opening..

4.5 Amendments and Corrections

Requests for amendments for silviculture prescriptions are made online through RESULTS, or through the ESF, using an opening definition report. Minor amendments (to silviculture prescriptions) and site plan amendments are submitted by ESF or made online and do not require approval. Major amendments to silviculture prescriptions require approval.

Corrections to spatial data (e.g., opening boundary, SU boundary) in RESULTS are made through an opening definition submission via ESF. Forest cover, silviculture activities or disturbance reports will require updates if the forest cover polygons or activity treatments units are affected.

4.6 Spatial Mapping Standards for Openings

Spatial information is required with opening definition reports. The opening definition contains two spatial components:

1. the opening boundary, and
2. the SU boundary or boundaries.

An opening can have no more than one opening boundary, and can have one or more SU boundaries according to the number of SUs within the opening.

Spatial information can be:

1. submitted as part of an opening definition via the ESF, or
2. copied from FTA using the “Include Exhibit A Spatial” checkbox on the online RESULTS301 – Opening Inquiry Screen.

The *copy from FTA Exhibit A* process copies the cutblock spatial outline (supplied to FTA during the CP application process) to the RESULTS system, and uses it to map the Opening and SU.

This approach is valid only if:

- The final harvested unit matches the block outline submitted to FTA;
- The block is comprised of a single SU; and
- Does not apply to the “one CP” process.

The opening boundary defines the location of the opening inclusive of roads, reserves, productive, and non-productive areas. The SU boundaries define each SU within the opening.

The opening in **Figure 1** consists of one SU and two wildlife tree patches (WTPs) that have the same attribute information. The opening definition includes the entire opening boundary and the external WTP in a multi-part shape. The SU Boundary excludes the WTPs.

Figure 1: Clearcut with two WTPs, one SU

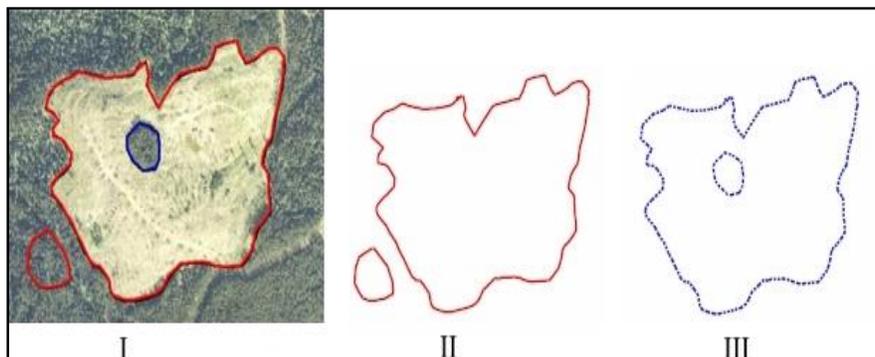


Figure 1: I) Clearcut with two WTPs, one SU. II) Opening Definition spatial data; Opening Gross Area comprises NAR, temporary access road, and WTPs, and is a multi-part polygon. III) SU spatial data. Represents the NAR of the SU. Excludes WTPs and is a polygon with an internal hole.

The opening in **Figure 2** is comprised of harvested patches and mature timber, and can be reported three ways, according to management objectives and how the opening information as reported to FTA.

1. The opening boundary can be a single polygon (II), with the SU comprised of all the harvested groups in a multi-part polygon (III).

This would reflect an FTA submission that included the unharvested forest in the block area as a reserve.

2. The opening and the SU can both be mapped using a multi-part polygon (III). This would reflect an FTA submission that included only the harvest patches in the block extent.

Figure 2: Group selection, with one SU

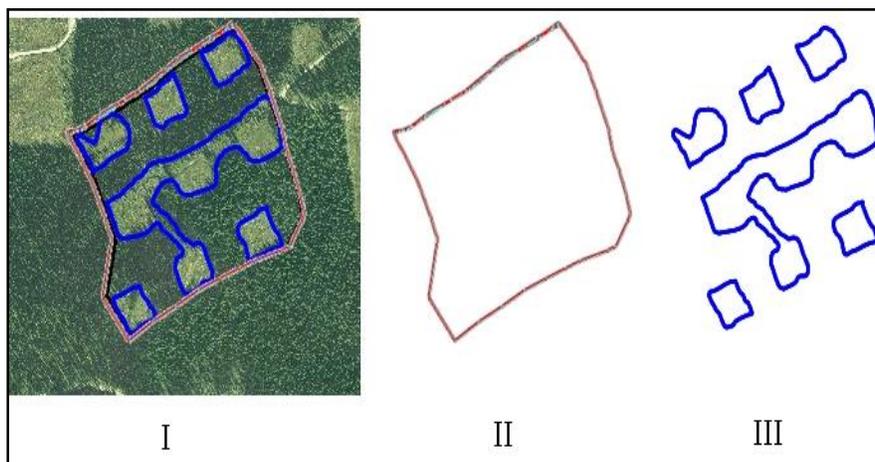


Figure 2: I) Group selection, with one SU. II) Opening boundary includes all the patches, residuals, and temporary access structures in the opening. III) SU Spatial data. The patches and temporary access roads are included in the SU boundary. A single multi-part polygon.

The opening in **Figure 3** is a variable retention system with three SUs defining distinct stand structures, plus a reserve.

Figure 3: Variable retention opening with three SUs and a reserve

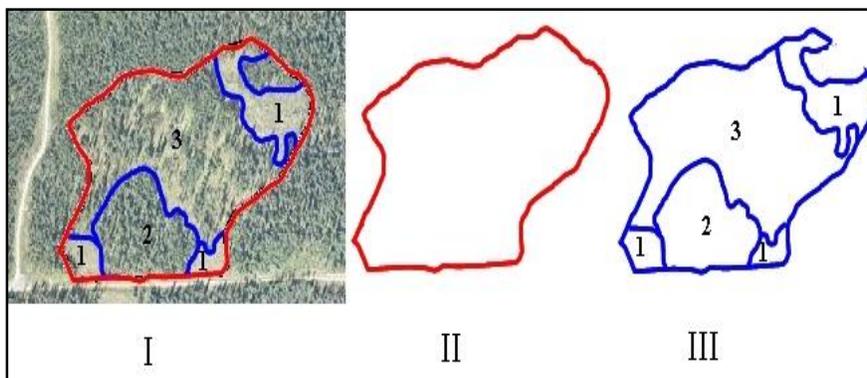


Figure 3: I) Variable retention opening with three SUs and a reserve. II) Gross Opening boundary includes SUs and the reserve. III) Three SUs are delineated: (1) multi-part polygon that consists of a clearcut (top) and two landings (bottom) that are managed according to the same stocking standards and allowable soil disturbance %; (2) an area within light single-tree selection harvest has occurred (not discernible on the photo); (3) an area within which group selection harvest has occurred. The opening in Figure 4 contains reserves, a clearcut SU, and a seed tree SU.

Figure 4: Opening containing WTP reserves, a Clearcut SU (1) and a Seed Tree SU (2)

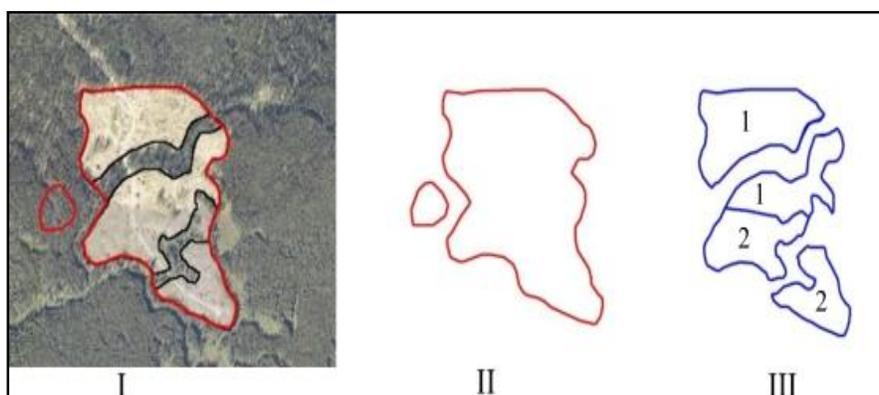


Figure 4: I) Opening containing WTP reserves, a Clearcut SU (1) and a Seed Tree SU (2). II) Gross opening area boundary comprises all SUs, WTPs, and temporary access roads. A single multi-part polygon. III) SU boundaries. Each SU (1 and 2) is a separate, multi-part polygon.

5. Disturbance Report

Disturbance reporting includes information specific to the disturbance of an opening, such as type of disturbance, type of silvicultural system, harvest start and completion dates, tenure, and disturbance gross area. The disturbance report includes attribute data. Disturbance spatial data is optional. Forest cover reports are submitted with disturbance reports.

Disturbance report includes:

1. areas where harvesting has been completed during the previous calendar year; and,
2. areas where natural disturbances occurred in a new opening or previously reported opening with outstanding silviculture liabilities.

Partial disturbances may be reported on an annual basis at the licensee's discretion. The denuded forest cover update shall be supplied upon completion of harvesting activities.

5.1 Timing

Disturbance information is submitted on or before April 30 for areas where harvesting has been completed during the previous calendar year ending December 31, or for cutblocks with silviculture obligations not yet declared free-growing that have been disturbed by some other natural or non-natural event prior to December 31 of the previous year. This information is also submitted for areas, subject to stocking standards under WLPPR 34(3) (e.g., no regeneration obligations such as commercial thinning, intermediate harvest or special forest products).

A disturbance report **may** be submitted prior to completion of harvesting on an opening, e.g., to report the portion of an opening that was harvested. The opening definition must either have been previously submitted, or submitted concurrently with the disturbance report.

5.2 Attribute data requirements

An opening can have one or more disturbance reports. A separate disturbance report is submitted for each distinct silvicultural system in an opening.

Attribute field requirements are listed in Table 7.

Table 7: Disturbance Activities Field Requirements

Field	Required	Description and Conditions
Action	Yes	Values of either I (Insert) or U (Update). 'I' is for new disturbance reports to RESULTS, and 'U' is to update disturbance reports previously submitted to RESULTS.
ATU ID	No	An automatically generated sequential number to identify a specific activity. Maybe used to update information for a given disturbance.
Licensee ID	Optional	Allows licensee to provide a unique identifier for the disturbance.
Licence Number	Yes	Licence number of the opening corresponding to the cutting authority. E.g., W0012.
Cutting Permit	Conditional	The cutting permit for the opening corresponding to the licence in the cutting permit document, if one exists.

Field	Required	Description and Conditions
Cutblock	Yes	The approved cutblock identifier for the opening. No leading zeros. Special characters and spaces are not recommended (e.g., -, /, _, *). E.g., 1002LM.
Disturbance Code	Yes	Code indicating the reason for the disturbance within the opening. See Appendix B to locate Disturbance Code List. (e.g., B; F; L; S).
Disturbance Start Date	Yes	Start date of the disturbance. Harvest commencement does not include road building activity. Not greater than today's date.
Disturbance Completion Date	Yes	Date when the disturbance is completed, after completion of primary harvesting activities (falling and yarding). Other activities or further requirements under the cutting authority are classified as post-harvest activities. Used to determine milestone declaration dates. Not greater than today's date.
Disturbance Area	Yes	Area (ha's) of the opening that was disturbed by the present activity. Includes: NAR, newly created roads, other unnatural non-productive features (e.g., NP UNN – gravel pits, landings), and natural non-productive sites (e.g., NP NAT, NCC - rocky outcrops, small swamps) too small to map. Does not include retained (undisturbed areas such as WTP or other reserves of mature or immature timber, previously existing roads, mappable natural non-productive areas (e.g., NP NAT – rock, swamps), or mappable non-commercial cover (e.g., NCC - brush) identified on the site plan that is excluded from the NAR.
Silvicultural System	Yes	Code that identifies the primary category of silvicultural system used and is either even-aged or uneven-aged. Different silvicultural systems in an opening are reported separately. See Appendix B to locate Silviculture System Code list.
Silvicultural Variant	Conditional	Code that further describes the spatial layout of the silvicultural system. Include if a variant applies to the silvicultural system. See Appendix B to locate Silvicultural Variant Code list.
Silvicultural Cut Phase	Yes	Code that describes the harvest entry or timing of the cut within the prescription. See Appendix B to locate Silvicultural Cut Phase Code List.
Is Harvest Complete	Yes	A Yes/No indicator identifying if the primary harvest activities were completed on the cutblock. This field sets the status of the cutblock in FTA to 'LC' (logging complete).

5.3 FRPA s. 108

Please refer to Section 16 of the **RESULTS Information Submission Specifications for Government Funded Activities (RISS-gf)** at <http://www.for.gov.bc.ca/hfp/publications/00220/resultsSubmission.pdf>.

5.4 Spatial mapping standards for disturbances

Spatial disturbance area data is optional. Disturbance area consists of the NAR, newly created roads, other unnatural non-productive features (e.g., NP UNN – gravel pits, landings), and natural non-productive sites (e.g., NP NAT, NCC) too small to map.

Where multiple tenures govern a block, the reported disturbance area is apportioned by tenure.

Figure 5 through **Figure 8** show examples of different configurations of disturbed areas.

Figure 5: Opening with reserves

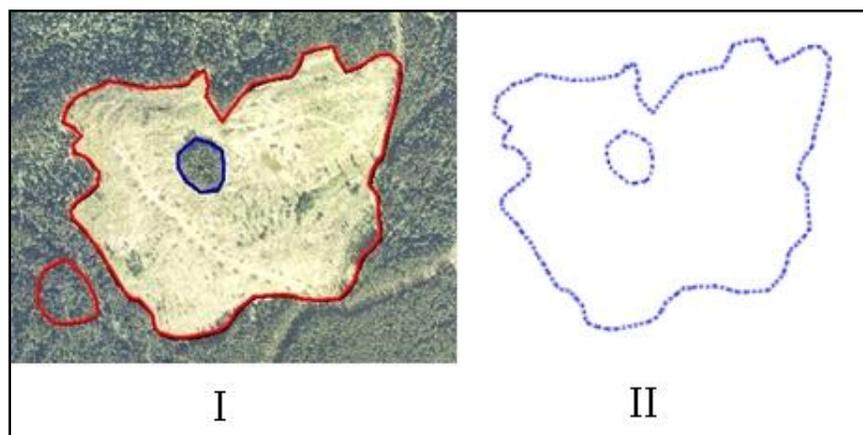


Figure 5: I) Opening with reserves. II) Spatial data for the disturbed area of the opening. This is a polygon with an internal reserve.

Figure 6: Opening with patch cuts

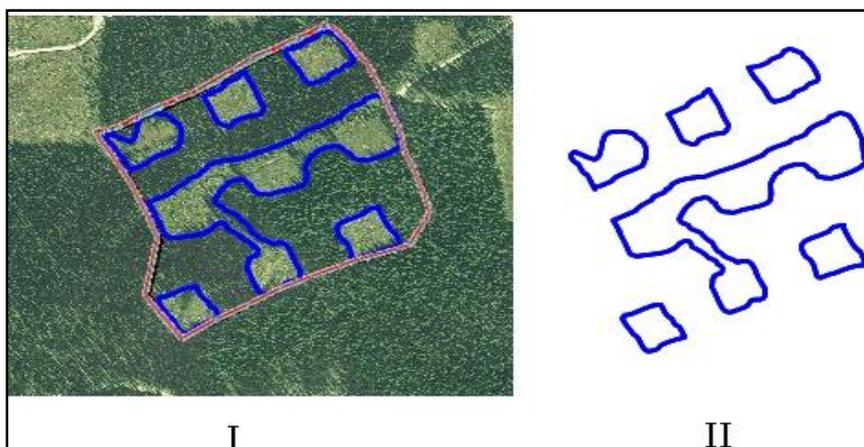


Figure 6: I) Opening with patch cuts. II) Spatial data for the disturbed area of the opening. A multi-part polygon.

Figure 7: Variable retention opening

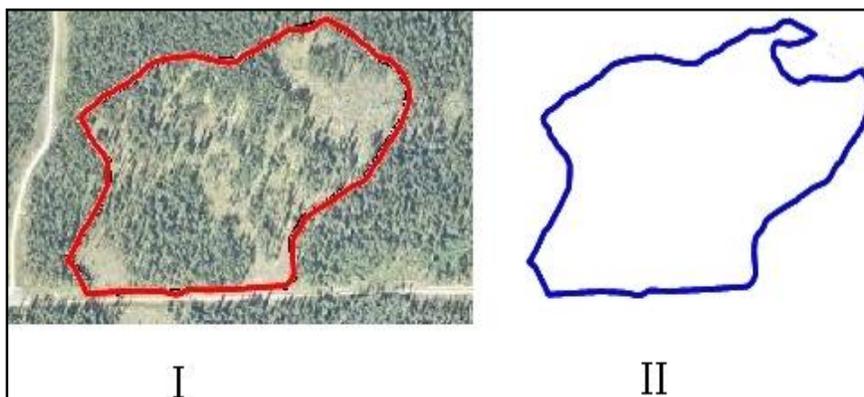


Figure 7: I) Variable retention opening. II) Spatial data for the disturbed area of the opening. In this case, only the reserve is excluded from the disturbed areas. The single tree and group tree selection areas are considered part of the disturbed area because forest cover has been slightly altered.

Figure 8: Opening with reserves

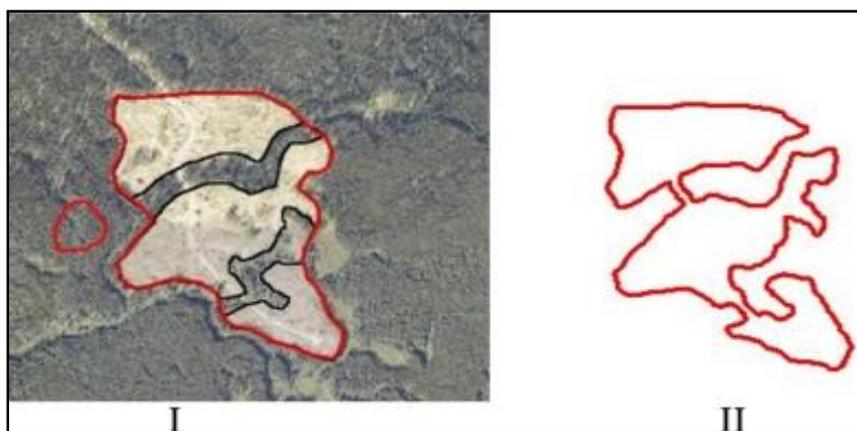


Figure 8: I) Opening with reserves. II) Spatial data for the disturbed area of the opening.

6. Silviculture Activity Report

The silviculture activity report includes information specific to silviculture treatments, as defined by WLPPR s. 1, in an opening, including type of treatment, objectives, funding source, and area treated. Attribute data are required, and spatial data are optional.

The Chief Forester requires annual reporting of silviculture treatments, which include:

- planting,
- brushing,
- juvenile spacing,
- fertilization,
- pruning,
- sanitation treatments associated with a silviculture treatment, and,
- pest management.

Data is submitted **by Opening** under any of the following circumstances:

- government funded projects;
- openings on which planting activities have been completed; or,
- openings with outstanding FPC obligations.

6.1 Timing

Silviculture treatment information is submitted before April 30 for areas where treatment has been completed during the previous calendar year ending December 31.

6.2 Attribute Data Requirements

Attribute field requirements for silviculture activities reported by openings are listed in **Table 8**. An opening can have one or more silviculture activity reports.

Table 8: Silviculture activities field requirements when reported by opening

Field	Required	Description and Conditions
Action	Yes	Values of either I (Insert) or U (Update). ‘I’ is for new silviculture reports to RESULTS, and ‘U’ is to update silviculture reports previously submitted to RESULTS.
ATU ID	No	An automatically generated sequential number to identify a specific activity. May be used to update subsequent information (online) for a given treatment.
Activity Base	Yes	Code that identifies a primary category of silviculture treatment or activity. See Appendix B to locate Activity Base Code List.
Technique	Conditional	Code that identifies a general technique for accomplishing silviculture activity and may be a descriptor of the base activity. Depends on Activity Base. See Appendix B to locate Activity Technique Code List.
Method	Conditional	Code that identifies a specific method for accomplishing silviculture work and is a subdivision of technique. Methods describe a physical process for accomplishing work. Depends on Activity Base/Technique. See Appendix B to locate Activity Method Code List.
Activity Cost	Optional	Projected cost of the planned activity if the <i>Actual Date Indicator</i> is set to “no”. Actual cost of completed activity if the <i>Actual Date Indicator</i> is set to “yes”. (Required for government-funded activities).
Objective 1	Optional	Code that describes the reason for the silviculture treatment. Depends on Base Activity. Three objectives per activity are allowed. See Appendix B to locate Objective Code List.
Objective 2	Optional	Code that describes the reason for the silviculture treatment. Depends on Base Activity. Three objectives per activity are allowed. See Appendix B to locate Objective Code List.

Field	Required	Description and Conditions
Objective 3	Optional	Code that describes the reason for the silviculture treatment. Depends on Base Activity. Three objectives per activity are allowed. See Appendix B to locate Objective Code List.
Actual Date Indicator	Yes	A “yes” or “no” indicator. Set to “yes” if the activity has been completed ⁸ .
Activity Date	Yes	Date of the completed activity. If the <i>Actual Date Indicator</i> is set to “yes”, this is the date on which the activity was completed. Required if the activity is complete.
Licensee ID	Optional	Licensee Activity ID. A unique identifier provided by the Licensee to identify the activity. Used to submit an update to an existing activity. RESULTS uses the Licensee ID to identify the treatment record to be updated. To update an activity without a Licensee ID, ATU ID (available online) for the activity can be input in the LicenseeID field.
Funding Source	Yes	Code that identifies the funding source for silviculture treatment. See Appendix B to locate Funding Source Code List. E.g., IA – industry appraisal.
Funding Project Number		Refers to the inter-agency no. Please refer to Section 16 of the RESULTS Information Submission Specifications for Government Funded Activities (RISS-gf) at http://www.for.gov.bc.ca/hft/publications/00220/resultsSubmission.pdf .
Treated Amount	Yes	The net area treated.
Planting Stock (Conditional) When the activity base is PL (planting) and “Actual Date” indicator is set to “yes” the planting stock fields must be completed. This information is not required for activities other than planting.		
Seedlot-Veglot	Yes	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. Seedlot-Veglot must exist in SPAR and be entered exactly as it exists in SPAR.
Species	Yes	Code that represents the species of trees planted per the seedlot-veglot. See Appendix B to locate Species Code List.
Number Planted	Yes	Total number of trees of the given seedlot planted.
Excess of Transfer Limit	Conditional	Number of trees planted in excess of the seedling transfer limits described in the “Chief Forester’s Standards for Seed Use” at http://www.for.gov.bc.ca/code/cfstandards/ . Required when the trees planted exceed seedling transfer limits.

⁸ A setting of “no” indicates a planned activity (“no” setting is optional for licensee obligations).

6.3 Attribute Details

6.3.1 Activity Treatment Units

Silvicultural treatments are reported by activity treatment units (ATUs). Each activity is reported in a unique ATU. An opening can contain several silviculture ATUs, which can overlap. Spatial data identifying the extent of the ATU is not required. Licensees may choose to submit spatial data for an ATU, and RESULTS will accept the data.

6.4 Harvest and Planting in the Same Reporting Period

When harvest completion and planting occur within the same reporting period for the same area, a disturbance report and a silviculture activity report are submitted. A denuded forest cover report must be submitted with the disturbance report. If the SU changes to satisfactorily restocked as a result of the planting activity, the forest cover report should convey the new SR stocking status. It is mandatory that the denuded forest cover as a result of the disturbance activity be submitted first and can be immediately followed by a forest cover update to reflect the planting activity

6.5 Silviculture Surveys

Submission of data pertaining to completed silviculture surveys is mandatory for Woodlot Licensees. Generally only FG surveys are mandatory. The survey itself is reported as an activity. The survey data is reflected in the mandatory forest cover reports.

6.6 Spatial Mapping Standards

Spatial data are optional for silviculture activity treatment unit reports for licensees.

7. Forest Cover Report

7.1 Introduction

Forest cover inventory reports include inventory attribute data (e.g., area, number of trees, tree species, tree species percent, damage agents, non-mapped components, etc.) and spatial data (e.g., spatial location, shape of the polygon, etc.) for each polygon in an opening. They are also referred to as “forest cover polygon reports”.

Forest cover attribute and spatial data are submitted through the ESF, and can be viewed and corrected (attribute data only) in RESULTS.

All polygons within the opening are reported (listed with attributes and located on the map), including openings in which only a portion of the opening is treated or surveyed. Polygons within the opening that were not surveyed or treated are identified and their locations and attributes are included as part of the report, along with the reference year (the year to which the attribute information applies; generally the last time the polygon was treated or surveyed). Hence, each report for an opening includes: 1) all polygons within all Standards Units (as defined by WLFPPR s. 1(1)) for an opening; and, 2) all polygons within the opening that are excluded from Standards Units (i.e., excluded from the NAR per WLFPPR s. 1(2)).

Forest cover text and spatial data may be submitted:

- via the ESF, or
- via the RESULTS online using the “copy exhibit A” functionality for openings:
 - with 1 standard unit,
 - with 1 forest cover polygon,
 - with no other mappable features such as roads, landings, swamps, and NP area – those areas may be reported as non mapped areas in the RESULTS321 - Forest Cover Details screen,
 - where the actual disturbance area matches the exhibit A spatial submitted to FTA, and,
 - were not harvested under the 1 CP regime.

Note: When using the “copy exhibit A” functionality, any subsequent updates to forest cover attributes can be done online as long as the spatial data remains the same.

7.2 Timing

Forest cover polygon information is submitted before April 30 for each area:

- where harvesting other than that exempt from free to grow obligations under WLPPR s 34(2)(d) or (e) has been completed prior to December 31 of the previous calendar year,
- that has met free-growing date prior to December 31 of the previous year; or, where a declaration of Free Growing Milestone has been made in accordance with FRPA 107 and WLPPR 84, or,
- that has not met free-growing requirements but the late free-growing date has passed prior to December 31 of the previous year,
- forest cover information required per WLPPR s 75(5) for intermediate or partial cut areas subject to WLPPR s 34(2)(d) or (e) is submitted at least 12 months and not more than 36 months from the completion of harvesting.

7.3 Attribute data requirements

An opening can have one or more forest cover polygon reports. Each forest cover polygon report can have a non-mapped component, and one or more layers. Each layer can have one or more tree species, and one or more damage agents.

Four components comprise the forest cover data in RESULTS: **polygon, inventory, silviculture, and non-mapped**. The polygon component is submitted for all polygon reports. The inventory and silviculture components are submitted for polygons within SUs. The non-mapped component accounts for areas too small to map that are removed from the NAR within a given polygon.

Field requirements for forest cover attributes are in **Table 9**.

Survey methods, and associated terminology definitions, for forest cover data are at http://www.for.gov.bc.ca/his/results/business.htm#Survey_Methods.

7.3.1 Polygon Component

Table 9: Forest Cover Polygon field requirements

Field	Required	Description and Conditions
Standards Unit ID	Conditional	The SU associated with the forest cover polygon. Required if the polygon (including a reserve) is within a “Standards Unit” as defined by WLPPR 1(1) and subject to “net area to be reforested” as defined by WLFPPR 1(2).
Licensee ID	Yes	Unique identifier for the forest cover polygon assigned by the licensee. In RESULTS this field is referred to as Polygon ID. No duplicates permitted. E.g., 1,2, 3; or X, Y, Z.
Area	Yes	Gross area (ha) of the forest cover polygon. (Net area is derived by subtracting any non-mapped area).
Reference Year	Yes	Year the forest cover polygon data were collected. Typically the year of the survey. 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 from the survey date, and reflects the date the road was measured or the block area was determined.
Re-entry Year	Conditional	Year the next harvest entry is expected to occur in the opening. Applies to single tree selection in which a subsequent harvest entry is planned prior to the end of the rotational planning cycle.
Stocking Status	Yes	Code representing the growing space occupancy relative to a pre-established standard. Status refers to whether the site has achieved those standards, and is determined by milestone and/or forest cover information. Stocking status is most often described as not satisfactorily restocked (NSR), immature (IMM) or mature (MAT). See Appendix B to locate Stocking Status Code List.
Stocking Type	Yes	Code representing a sub-classification of the stocking status. See Appendix B to locate Stocking Type Code List. e.g., natural (NAT); plantable (PL); non-plantable (NPL).
Reserve Type	Conditional	Code that identifies the spatial pattern of a reserve or retention area associated with a silvicultural system. Required if a <u>reserve</u> or a <u>retention area</u> is associated with the forest cover polygon. “G-Group” (a defined, mapped patch of residual trees) or “D-Dispersed” (a defined area within which are dispersed unmapped residual single trees or small clusters of trees).

Reserve Objective	Conditional	Code that identifies the reason for leaving the reserve. Required if Reserve Type = G or D. See Appendix B to locate Silviculture Reserve Objective Code List. Code for long term (entire rotation) <u>reserve</u> is any code other than “TIM”. Code for <u>retention area</u> associated with a silvicultural system, in which the residual stems are available for harvest prior to the end of the rotation (e.g., second pass), is “TIM”.
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Site Index	Conditional	A measure of forest land productivity. Enter the projected average height in metres of the leading species of the forest cover inventory component at 50 years. Polygon Level Validation: Site Index is mandatory for the following stocking status IMM, MAT, NSR - <u>Regardless of whether tree species are provided.</u> Required if tree species are entered. For multi-storey stands, the SI is for the layer next due for harvest (the layer with the greatest site occupancy). For reserves, the SI may be based on previous stand information applied to the mature layer, or the layer with the greatest site occupancy.
Site Index Source	Conditional	Code representing the source or origin of the site index. Required if site index is entered. Use the most accurate method of collecting site index. See “11, <i>Selecting a method to estimate site index</i> ” on the FS 660 Card (http://www.for.gov.bc.ca/isb/forms/lib/FS660.PDF). See Appendix B to locate Site Index Source Code List. e.g., C – site index from site index curve; H – site index from stand before harvest.
Tree Cover Pattern	conditional	The spatial arrangement of residual patches of overstorey (layer 1). A forest health indicator. Applies to polygons, including reserves, in which trees are retained as part of the silvicultural system or disturbance characteristic (e.g., stands with overstoreys). See Appendix B to locate Tree Cover Pattern Code list

7.3.2 Inventory Component

Table 10: Forest cover "inventory component" field requirements

Field	Required	Description and Conditions
Layer	Conditional	Code that characterizes a distinct canopy cohort within a polygon, containing a common forest cover structure with stems of similar ages and heights. Inventory component layers are: 1(Mature), 2 (Pole), 3 (Sapling), and 4 (Regeneration). I (non-layered, even –aged stand). See Appendix B to locate Layer Code List.
Crown Closure	Conditional	The closing together of the crowns of trees in a forest as they age and grow, effectively blocking sunlight from reaching the forest floor. Required if tree species are entered. See FS 660 Card. http://www.for.gov.bc.ca/isb/forms/lib/FS660.PDF .
Total Stems	Conditional	Total number of stems per hectare within the forest cover polygon. Required if tree species are entered.
Basal Area	Conditional	Average cross-sectional residual basal area (m ²) per hectare of all stems ≥ 12.5 cm diameter at breast height (dbh; 1.3 m). Required for openings where basal area is $> 5\text{m}^2/\text{ha}$ and is part of a stocking standard. Basal area for Layer 2, 3, or 4 is blank.
Species	Conditional	Code representing the tree species within the polygon. Required if trees are present on the polygon. See Appendix B to locate Species Code List. Enter the code describing the leading commercial species – the species with the highest percent composition (e.g., gross volume [L1 and L2] or, in young stands, the relative number of stems per hectare). Duplicate species not allowed on the same label or layer. Species may describe brush species in cases where stocking status is NCBR.
Species Percent	Conditional	Estimate of given inventory component tree species percentage within the polygon. Sum of all species in the inventory component must equal 100. Required if species are entered in the inventory component.
Average Age	Conditional	Average age of the given inventory component leading tree species in years. Stocking surveys: Average age of dominant and co-dominant leading species. Free-growing surveys: Average age of dominant and co-dominant leading species.
Average Height	Conditional	Average height of the given inventory component leading tree species in metres. For un-even aged stands, layer 4 heights are less than 1.3 m. Stocking surveys: Average height of dominant and co-dominant leading species. Free-growing surveys: Average height of dominant and co-dominant leading species.

Field	Required	Description and Conditions
Damage Agent	Conditional	Insect, disease, or other factor that has caused tree damage ⁹ within the polygon. Required where damage agent is present within the polygon. See Appendix B to locate Damage Agent Code List.
Incidence Percent	Conditional	Percent of host species within the polygon impacted by the given damage agent. Required where damage agent is present within the polygon.
Incidence Area	Conditional	Number of hectares affected by the given damage agent. Required where damage agent is present within the polygon.

⁹ Exceeding the free-growing damage criteria

7.3.3 Silviculture Component

Table 11: Forest cover "silviculture component" field requirements

Field	Required	Description and Conditions
Layer	Conditional	Code that characterizes a distinct canopy cohort within a polygon, containing a common forest cover structure with stems of similar ages and heights. Silviculture component layers are: 1S (Mature), 2S (Pole), 3S (Sapling), and 4S (Regeneration) and S for non-layered, even-aged stand. Required if multi-storied stocking standards apply to a standards unit. See Appendix B to locate Layer Code list.
Total Well Spaced	Conditional	Total number of well-spaced stems per hectare. Stem density for silviculture layer disregarding the M-value. Trees are healthy, preferred, or acceptable species, and well-spaced using the minimum inter-tree distance in the stocking standards (as defined by the Standards ID). Required for all polygons within an SU, where well-spaced stems/ha are specified in the Silviculture Prescription or FDP/WLP. Not required for group reserves with no associated SUs, or for intermediate cuts with no regeneration obligations.
Well Spaced	Conditional	Number of well-spaced stems per hectare. Stem density for silviculture layer using the M-value. Trees are healthy, preferred, or acceptable species, and well-spaced using the minimum inter-tree distance in the stocking standards (as defined by the Standards ID). Required for all polygons within an SU, where well-spaced stems/ha are specified in the Site Plan or FDP/WLP. Not required for group reserves with no associated SUs.
Free-growing	Conditional	Number of free-growing stems per hectare. Free-growing stem density for the silviculture layer (based on the M-value ¹⁰). Free-growing trees are healthy, preferred, or acceptable species, well-spaced, free from inhibiting brush, and meet or exceed the required minimum height (if applicable). Greater than or equal to the minimum stocking standard if SU is declared free-growing. Required for all polygons within an SU, where well-spaced stems/ha are specified in the Site Plan or FDP.WLP. Not required for group reserves with no associated SUs.

¹⁰ See http://www.for.gov.bc.ca/his/results/business.htm#Survey_Methods

Basal Area	Conditional	Average cross-sectional residual basal area (m ²) per hectare of crop tree stems >12.5 cm at breast height diameter (dbh; 1.3 m). Required for openings where basal area is part of a stocking standard or where the basal area > 5m ² /ha. Basal area for Layers 2S, 3S, 4S is blank.
Species	Conditional	Code identifying the preferred and acceptable well-spaced species in the polygon. Required if preferred or acceptable well-spaced species are present on the polygon. See Appendix B to locate Species Code List. Duplicate species not allowed on the same label or layer. Species may describe brush species in cases where stocking status is NCBR.
Species Percent	Conditional	Estimate of a given silviculture component species percentage within the polygon. Sum of all silviculture component species must equal 100. Required if species are entered in the silviculture component.
Average Age	Conditional	Average age of the given silviculture component tree species in years. For stocking surveys: Average age of all preferred and acceptable well-spaced sample trees. For free-growing surveys: Average age of all preferred and acceptable free-growing sample trees.
Average Height	Conditional	Average height of the given silviculture component tree species in metres. For un-even aged stands, layer 4 heights are less than 1.3 m. For stocking surveys: Average height of all preferred and acceptable well-spaced sample trees. For free-growing surveys: Average height of all preferred and acceptable free-growing, sample trees.
Damage Agent	Conditional	Insect, disease, or other factor that has caused tree damage exceeding the free-growing damage criteria within the polygon. Required where damage agent is present within the polygon. See Appendix B to locate Damage Agent Code List.
Incidence Percent	Conditional	The percent of host species within the forest cover polygon impacted by the given damage agent with damage exceeding the free-growing criteria. Required where damage agent is present within the polygon.
Incidence Area	Conditional	Number of hectares affected by the given damage agent. Required where damage agent is present within the polygon.

7.3.4 Non Mapped Component

Table 12: Forest cover "non-mapped component" field requirements

Field	Required	Description and Conditions
Non-mapped Component ID	Yes	Unique identifier for the non-mapped component defined by the licensee. Areas (e.g., rock or swamp) too small or dispersed to map that should be taken out of the productive area – NAR – but should be accounted for.
Area	Yes	Area of the non-mapped component in hectares.
Stocking Status	Yes	Code representing growing space occupancy relative to a pre-established standard. Status refers to whether the site has achieved those standards. See Appendix B to locate Stocking Status Code List. Cannot be IMM or MAT.
Stocking Type	Conditional	Code representing a sub-classification of the stocking status. See Appendix B to locate Stocking Type Code List. e.g., natural (NAT); unnatural (UNN); road (RD).

7.4 Stratification

New polygons are created in the following cases (not a complete list)¹¹:

- More than a 20% difference in leading species composition (e.g., Pl₈Sx₂ is separated from Pl₅Sx₅);
- Change in the leading species (e.g.; Fdc₈Cw₂ is separated from Cw₆Fdc₄);
- Species composition changes from a mixed species to a pure stand (e.g.; Fdc₁₀ is separated from ₁Fdc₈Hw₂Cw₁);
- Any stratum that does not meet the required minimum stocking standard at the regeneration of free-growing time frames;
- Any stratum that has more than the allowable number of countable stems/ha specified in a plan, prescription, or ministry policy;
- Any stratum with residual basal area retained (e.g., clear cut portion is separated from portion with residual basal area retained);
- Age difference between the leading inventory species in adjacent strata is 20 years or more;
- Height difference between the leading inventory species in adjacent strata is 10 m or more;
- Site index based on the leading inventory species in adjacent strata differs by more than 3 m; and,
- Different NP types (e.g., NP BR versus NP UNN).

If a forest cover type crosses an SU boundary, the forest cover polygon is divided into two polygons. Where an opening is not stratified into units smaller than SUs, the forest cover polygons are the same as the SUs that are identified for the opening.

¹¹ See also *Survey Methods and Stratification* at http://www.for.gov.bc.ca/his/results/business.htm#Survey_Methods

7.5 Minimum Polygon Size

Recommended minimum polygon sizes for RESULTS spatial submissions depend on:

1. Whether or not the polygon is associated with an SU, 2) the area of the SU (if applicable), 3) a polygon's stocking status, and, 4) whether or not the report relates to a milestone declaration.

Recommended minimum polygon sizes are, for:

- SUs less than 1 ha, **the entire SU¹²** for declaring milestones.
- SUs that exceed 1 ha, for declaring:
 - Post-harvest or regeneration milestones of an SU that is stocked or NSR: **1 hectare** Free-growing date milestones of a free-growing SU: **1-2 hectare¹³**
 - Free-growing date milestones of an SU that is not free-growing: **1-2 hectares**, provided the polygon is less than 5% of the SU NAR and is mappable¹⁴.
 - Classifying Reserves and NP areas¹⁵; **0.25 hectares** (for mappable polygons)
 - Polygons that are stocked or free-growing, and are not submitted as part of a free-growing declaration, where boundaries are:
 - recognizable and distinct on an air photo, differences in stand type are classified to a minimum polygon size of **2 hectares¹⁶**; **or**,
 - not recognizable and distinct on an air photo, differences in stand type are classified to a minimum polygon size of **5 hectares**.

7.6 Multi-layer stands

If the stand is even-aged and single-layered, then only one layer of forest cover information is reported in the silviculture and inventory components. If the stand is multi-layered, then up to four layers of forest cover information are reported for both the silviculture and inventory components.

¹² RESULTS can accommodate a minimum polygons size of 0.1 ha.

¹³ At the time of free growing a minimum of 1 hectare and a maximum of 2 hectare of mappable non free growing area may exist and the obligation is still considered achieved as long as the non free growing area does not exceed 5% of the SU area. (See FPPR section 46.11).

¹⁴ Suggested definition of “mappable”; a polygon greater than 20 meters throughout its length. Areas that do not meet stocking obligations less than 20 m from the nearest NSR or not free-growing area are considered contiguous units.

¹⁵ RESULTS can accommodate smaller polygons (e.g., 0.1 ha), to allow for clarity in reporting diverse forest management regimes (e.g., wildlife tree patches, research trials).

¹⁶ Subject to minimum size constraints in Section.

7.7 Residuals and Reserves

Reserves are 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. The RESULTS “Reserve Type” and “Reserve Objective” fields are used to classify residuals in both long term reserves and residual left for less than a rotation as part of a silvicultural system.

Reserve Type refers to the spatial pattern of the reserve: “Group” or “Dispersed”.

“Group”: - a defined, mapped patch of residual trees, generally does not have NAR¹⁷ (generally >0.25 ha, but ≥ 0.1 ha polygons will be accepted by RESULTS)

“Dispersed”: trees that are reserved individually or in unmapped groups (e.g., small clusters <0.25 ha), but are enclosed within the boundaries of the mapped polygon designated as “dispersed reserve”; has NAR.

Reserve Objective refers to the management goal of the reserve. Reserves that are constrained for an entire rotation (usually Group reserves) are coded according to the constraining objective, e.g., Wildlife tree patches (WTR), Riparian reserve (RMA). Reserves not constrained to an entire rotation are assigned the objective of timber management (TIM) and are modeled as contributing to future timber supply whether or not a second pass is scheduled or planned.

Group reserves that do not have harvest entries or associated silviculture responsibilities and are mapped and reported. Silviculture and inventory component information are not required in this case. Only polygon components are submitted where the pre-existing vegetation inventory will be used for vegetation update process. If group reserve with an inventory component is provided, it will be used to update vegetation inventory.

For example, if a polygon is coded as a reserve with reserve objective “TIM”, then the forest cover pertaining to a “mature” layer or “pole” layer within that polygon is understood to be part of a silvicultural system that features some kind of retention of residuals (e.g., residuals used for a seed tree silvicultural system, single or groups election, shelterwood, patch cut, etc...). These residuals are understood to be available for harvesting during a future cutting cycle prior to the end of the rotation, whereas, residuals left as part of a long term reserve are understood to be not available for harvest until the end of the rotation. **Figure 9** summarises how reserves are classified in RESULTS.

For guidance on reporting forest cover with treed retention please refer to “Submitting Forest Cover to RESULTS for Openings with Treed Retention” at http://www.for.gov.bc.ca/his/results/Forest_Cover_Retention_Submissions.pdf.

For guidance on survey methodology and stratification please refer to “Silviculture Survey Procedures Manual” at <http://www.for.gov.bc.ca/hfp/silviculture/Surveys/SilvicultureSurveyProceduresManual-2012.pdf>.

¹⁷ Unless, under special cases, it is subject to harvest activities as in a Reserve with Modifications.

7.8 Mapping Reserves

Group Reserves 0.25 ha or greater: Group reserves equal to or greater than 0.25 ha are mapped, including fully external reserves.

Dispersed Reserves: Dispersed reserves are mapped as part of a standards unit. Any density¹⁸ of dispersed retention is included within a standards unit.

Reserves less than 0.25 ha: Reserves from 0.1 to 0.24 ha, are tracked. If the exact locations of these reserves are mapped they may be reported as individual “Group” reserves. If the exact locations of these reserves are not mapped, they are reported as “Dispersed” reserves within an SU, and the polygons within which they are located are mapped, although the individual trees themselves are not mapped.

7.9 Roads and Other NP Features

Forest cover polygons are created for roads¹⁹ and other non-productive or non-forested areas within an Opening which meet minimum mappable polygon size standards.

Areas which should be removed from NAR but which are non-mappable because they are too small and/or too dispersed are identified in the forest cover non-mapped area attributes.

7.9.1 Mapped Non-Productive Areas

Forest cover reports for mapped non-productive areas include Polygon ID, area, stocking status, stocking type, and reference year. Reports may contain an inventory layer to describe tree cover in a NP area.

NP areas are reported in the initial post-harvest forest cover report. They are included in subsequent reports as well, but the reference year remains unchanged if stocking status has not changed.

7.9.2 Roads

Roads are reported according to tenure type, polygon size, whether they are permanent or temporary, and how they align with the SU.

- Permanent access roads and landings within an opening are reported to RESULTS as part of the opening non-productive area.

If the road polygon is large enough to map, it is reported as a forest cover polygon with Stocking Status NP and Stocking Type RD.

If the road polygon is too small to map, it is reported using forest cover non-mapped area attributes.

- Temporary access roads and landings within an opening are reported to RESULTS, generally as NP-UNN. The stocking status may change to NSR or IMM as the road areas is rehabilitated and trees are established.

¹⁸ This serves as the linkage to the stocking standard.

¹⁹ Report retention if the cumulative sum of retention within the stratum is at least 0.1 hectares of basal area equivalency (i.e., if all the pre-harvest BA for the dispersed retention were compressed together, the resultant area would be greater than 0.1 hectares).

If the road polygon is large enough to map, it is reported as a forest cover polygon.

If the road polygon is too small to map, it is reported using forest cover non-mapped area attributes.

7.10 Spatial Mapping Standards

Forests cover polygons can be composed of multiple, spatially discrete areas which share common characteristics, but which are spatially separated by areas which are part of a different polygon. These spatially discrete areas must be combined in multipart polygons. They should not be submitted to RESULTS as individual discrete polygons.

Shows examples of SU to forest cover relationships.

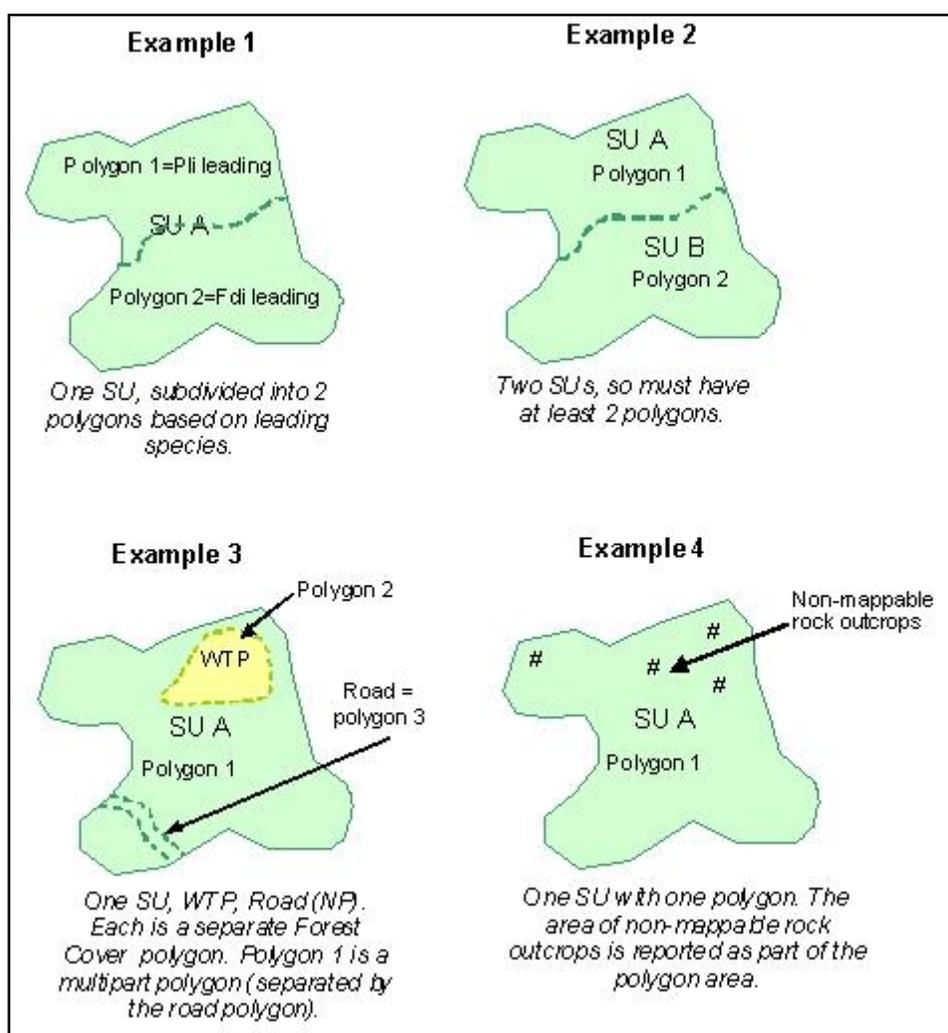


Figure 9: Opening comprised of three forest cover polygons

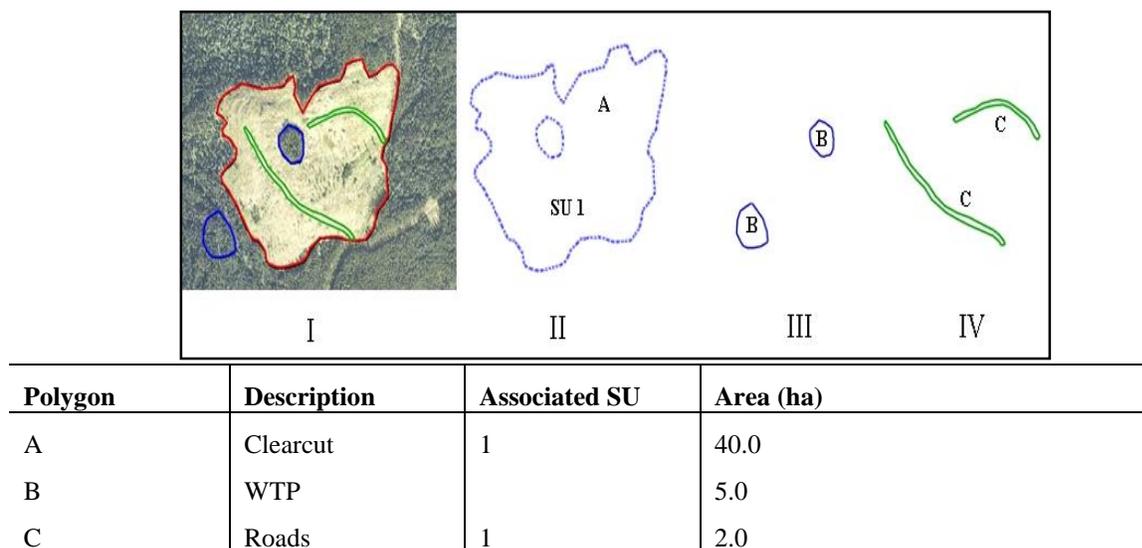


Figure 9: I) Opening comprised of three forest cover polygons. II) The productive area (NSRNAT), a polygon with an internal hole. III) A multi-part polygon for the reserves (MATNAT). IV) A multi-part polygon for the temporary access roads (NPUNN).

Figure 10: Examples of SU to forest cover relationships

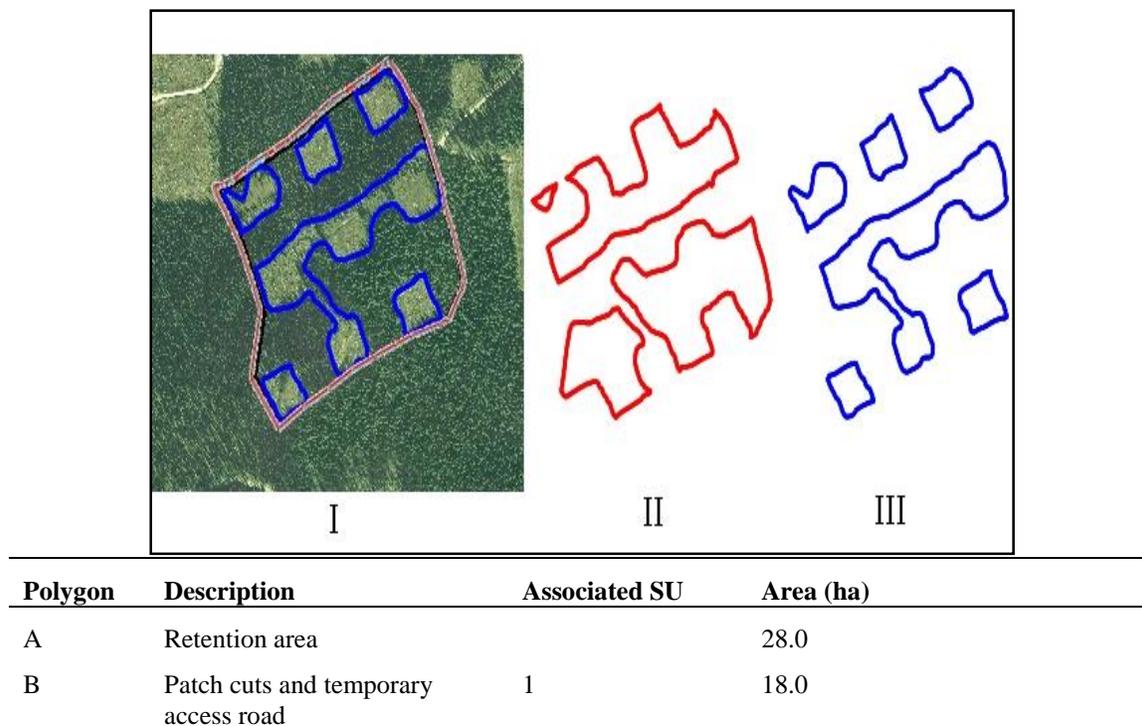


Figure 10: I) Opening is a multi-pass silvicultural system with a planned re-entry. Comprised of patch cuts with a surrounding retention area that will be available for a second pass. Two multi-part forest cover polygons are included. II) The first polygon represents the unharvested retention (MATNAT). The retention is classified as a Group Reserve with a TIM objective because it is subject to being available for a second pass harvest prior to the end of the rotation (whether or not it becomes harvested). III) The

second polygon represents the harvested patches (NSRNAT) including the temporary access road which, in this example, will be fully rehabilitated to the standards of SU1.

Figure 11: Opening comprised of three forest cover polygons

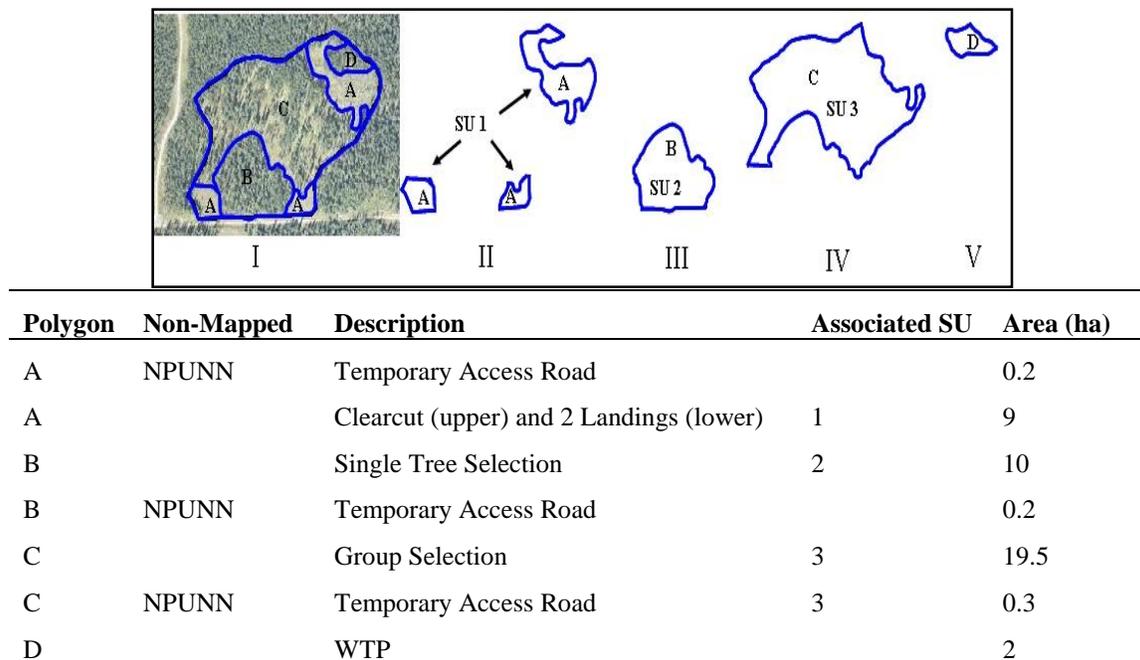


Figure 11: I) Variable retention opening²⁰. Each distinct silvicultural system is associated with a separate SU. The discernible main road at the bottom of the photo is part of a permanent road under a Road Permit, and is not reported to RESULTS for this example. Other small temporary road segments in this example (not discernible on this photo) are tracked as non-mappable components of the polygons.

²⁰ Harvested under more than one silvicultural system.

Figure 12: Opening divided into multiple forest cover polygons based on SUs, roads, and WTPs

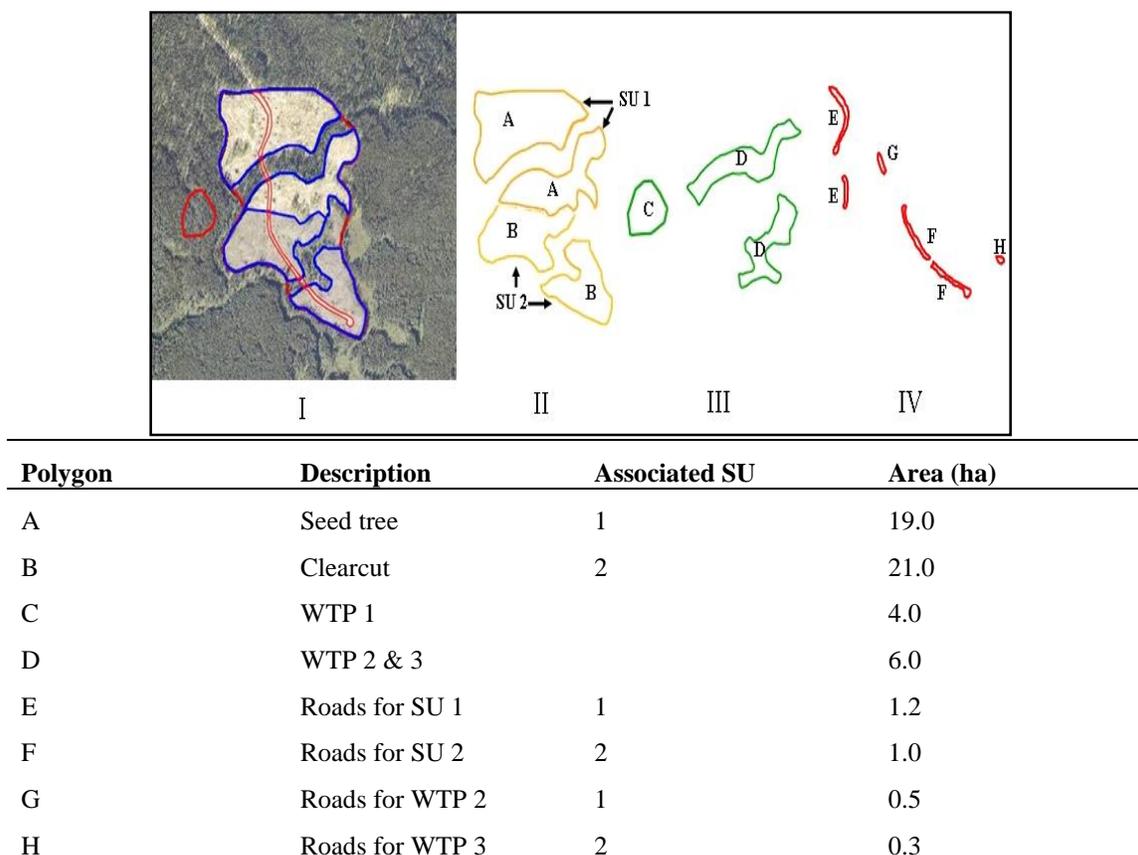


Figure 12: I) Opening divided into multiple forest cover polygons based on SUs, roads, and WTPs. II) Two multi-part polygons representing SUs 1 and 2. III) Polygon C represents the external WTP (significantly different from the internal WTPs; therefore not grouped). Polygon D represents the internal WTPs. IV) Roads. The roads that pass through the WTPs are associated with the SUs to which they are most proximal. In this case the road G for the upper WTP 2 will be rehabilitated to the standards of SU1. The road H for the lower WTP 3 will be rehabilitated to the standards of SU2.

8. Milestone Declaration Report

Licencees may use the milestone declaration report to declare that they have achieved any of the following milestones: post-harvest, regeneration, free-growing, or no-regeneration (for intermediate cuts subject to WLPPR s. 34[3]).

By declaring that a **free-growing** milestone has been met, licencees are, before further examination by the ministry, deemed to have met the obligation. Milestone declaration reports consist of attribute information, and are accompanied by current forest cover reports (with attribute and spatial data) for the areas that are being declared.

Declarations are subject to review by Ministry officials. Where Ministry officials believe that obligations have not been met, they may present information to the DDM for determination. Within the prescribed 15 month time frame following the declaration submission date the DDM may, after providing an opportunity to be heard, make a determination that the obligation that

has not been met and provide written notice for the reasons of this determination. After such a determination is made the declaration will be removed from RESULTS.

Declarations can be made either as a submission to RESULTS through ESF, or as an online update within RESULTS. A given opening may have multiple Declarations.

8.1 Timing

Milestone declarations are optional (FRPA section 107) and are submitted any time after the applicable stocking standards have been met.

8.2 Milestone Report Attributes

Attribute field requirements are listed in **Table 13**.

Table 13: Milestone declarations field requirements

Field	Required	Description and Conditions
Standards Unit ID	Yes	SU to which the milestone declaration relates.
Declaration Date	Yes	Date the declaration is made by the licensee official. ²¹ May not necessarily be the same as the submission date. If an opening has early and late free-growing offsets, the free-growing declaration date should be equal to either of, or between, the early and late free-growing dates. A FG declaration is not made prior to the early free-growing date of the Stocking Standard.
Milestone Type	Yes	See Appendix B to locate Milestone Type Code List. e.g., FG – free-growing; RG – regeneration; PH – post harvest; NR – No Regeneration.
Comment	Optional	

8.3 Attribute Details

8.3.1 Declaration rationale

If free-growing obligations have been met by the required date, a **free-growing** milestone declaration allows for the licensee liability to meet those obligations to be disposed.

Otherwise the licensee continues to be liable for those obligations, including continued management of impacts on the stand from disturbances or forest health issues.

8.3.2 Electronic Signature

FRPA s. 107(2) requires the license holder, or a person authorized by the license holder to make declarations, to sign the declaration. An electronic milestone declaration submitted using the BCeID with RESULTS Declaration Authority²² is considered an electronic signature.

²¹ The licensee official who is legally authorized to commit the licensee to reforestation obligations.

²² Licensees authorize users who can submit declarations on behalf of the licensee.

8.4 Supporting Documentation – Professional Assessments

The submitter may append a copy of the professionally signed and sealed assessment, that supports any kind of declaration, as an attachment²³ to the opening record in RESULTS.

8.5 Declarations by standards unit

Milestone declarations are submitted individually for each Standards Unit (SU) in an opening. SU identifiers correspond with those in the opening definitions existing in RESULTS. The ministry does not deem an opening disposed of its obligations until all SUs in the opening have been declared. Once all SUs in the opening have been declared free-growing, the Opening Status is automatically changed to FG- Free-growing.

8.6 Milestone due dates

Milestone due dates are tracked in RESULTS based on the information submitted with the opening definition. Due dates are displayed as the number of years from the commencement of harvest. Due dates are blank for post-harvest, given no requirement to submit post-harvest milestones for openings other than partial cuts or other intermediate cuts. The commencement date for obligations is initiated by disturbance reporting Commencement date.

Natural disturbances (NDxx), is initiated by the opening approval date;

Backlog areas (BLxx), is initiated by the completion of the first non-survey silviculture activity.

Harvested areas (FTWL), is initiated by the first disturbance start date

8.7 Forest cover updates

A current forest cover update is submitted when a milestone declaration is submitted [WLPPR s. 84(3)]. It can either be submitted together with other reports during the reporting period, or in the same submission as the milestone declaration.

8.8 Post-harvest milestone declaration

Post-harvest milestone declarations may be used to declare the completion of harvest and soil rehabilitation activities associated with soil disturbance or access structures rehabilitation for any silvicultural system.

8.9 No-Regeneration Milestone Declaration

No-Regeneration milestone declarations may be used to declare that no outstanding silviculture obligations exist on a polygon to which WLPPR s.34(3) applies (**e.g., for partial cutting or other intermediate cuts such as commercial thinning, harvesting poles, or sanitization**). No-Regeneration milestone declarations maybe submitted 12 months following the completion of harvest activities.

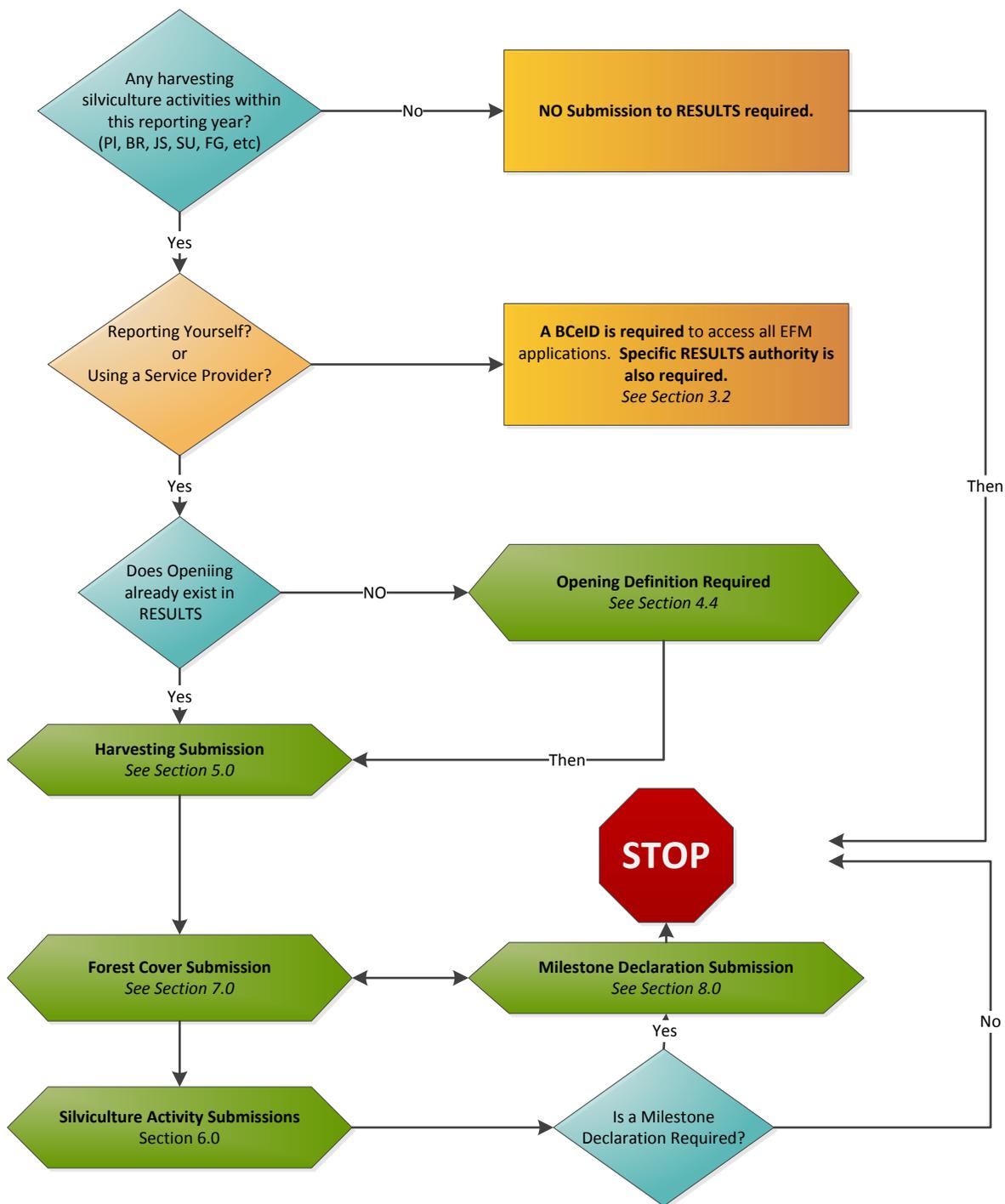
9.0 General Mapping Standards

For Mapping Standards please refer to the *RESULTS Information Submission Specifications – Licensee Submissions* at:

http://www.for.gov.bc.ca/his/results/RISS_Is_3a_ed_Oct1.pdf.

²³ This mechanism is available online only.

Appendix A - Woodlot Reporting Cycle



Appendix B - Code Lists and Technical Specifications

Valid code lists and code combinations are found in the Technical Specifications document at <http://www.for.gov.bc.ca/his/results/webhelp/index.htm>.

To access data Code lists:

1. Select **RESULTS** from then left vertical menu.
2. Then **Code Table**.
3. Then select the desired Code Table **Figure 14**.

Figure 13: Data Submission (Code Tables) - Opening Category

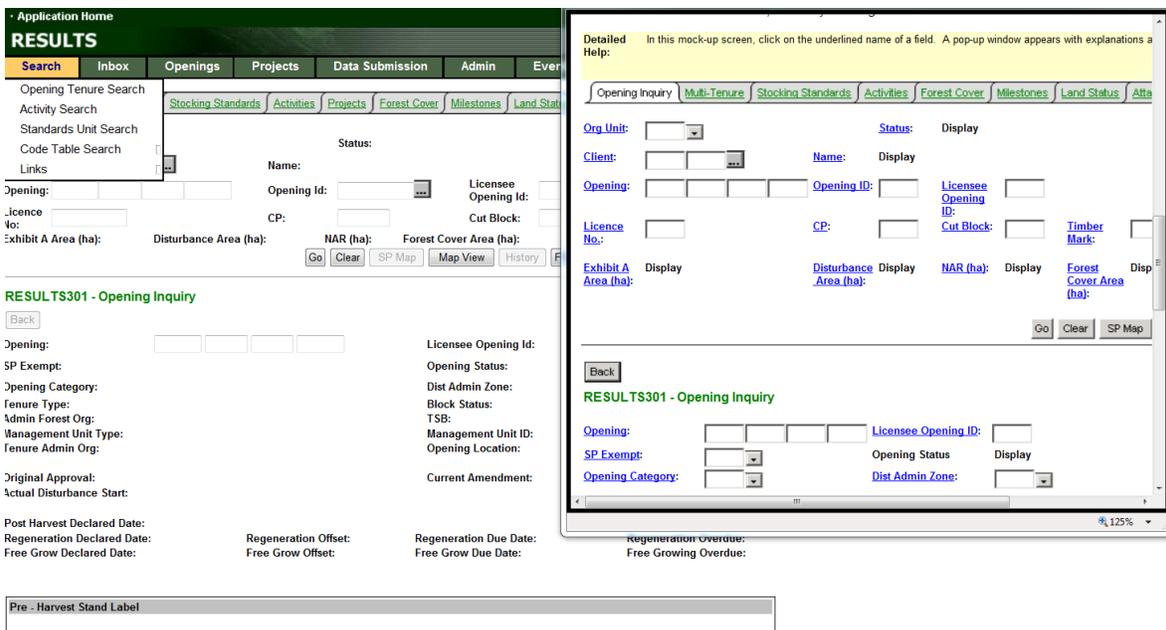
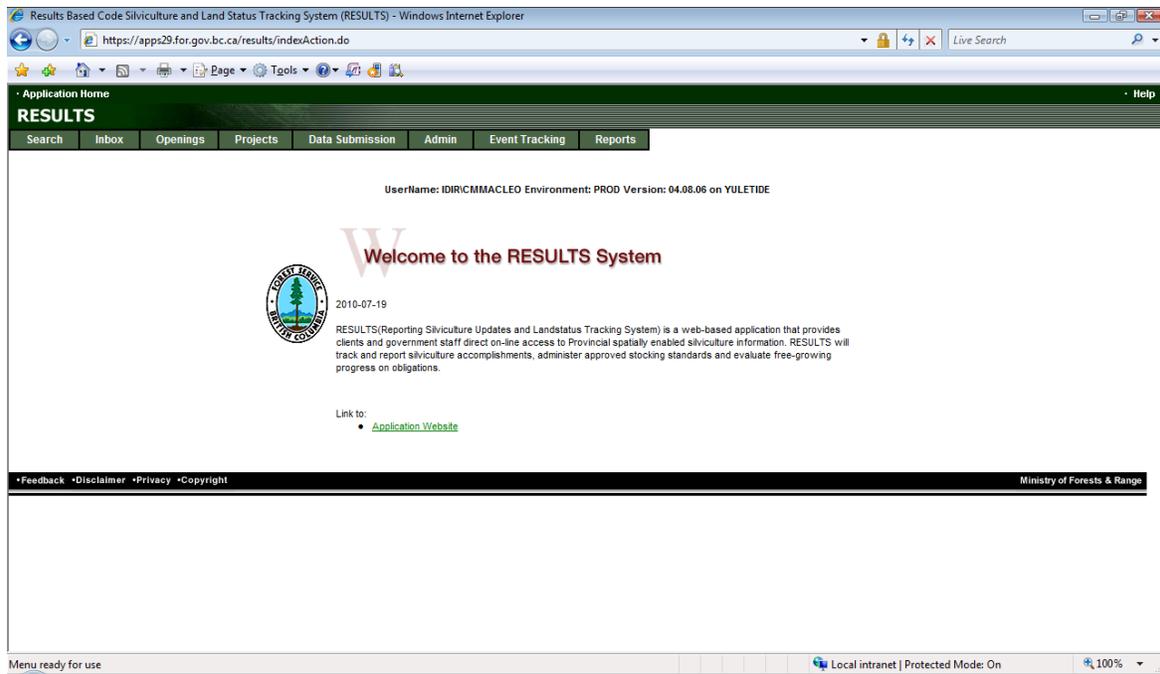
The screenshot shows a web application interface. On the left is a vertical navigation menu under the heading 'RESULTS'. The menu items include: Welcome, Technical Overview, Code Table (highlighted), Activity Base, Activity Method, Activity Technique, Activity Base/Objective Combin, Silv Base/Technique/Method C, Silv Base/Technique/Method C, Age Class, Code Tables, Damage Agent, Disturbance, Forest Cover Tree Species, Funding Source, Height Class, Layer, Milestone Type, Opening Category (highlighted), Reserve Type, Silvicultural Cut Phase, Silvicultural Objective, Silvicultural System, Silvicultural Variant, Silviculture Reserve Objective, Site Index Source, Spatial Data Capture Method, Spatial Data Source, Species, Stocking Class, Stocking Status, Stocking Type, Stocking Status and Stocking T, System/Variant/Phase Code C, Tree Cover Pattern, Tree Size Unit, Data Access Security Rules, Online Tech Specs, Tech Specs - Electronic Submission, Error Messages - Electronic Submis, and Change History.

The main content area is titled 'Data Submission (Code Tables) - Opening Category' and contains a table with two columns: 'Code' and 'Description'.

Code	Description
BLCF	Backlog SP Area - Community Forest
BLFS	Backlog SP Area - Forest Service
BLML	Backlog SP Area - Major Licensee
BLWL	Backlog SP Area - Woodlot License
CONT	SP as part of contractual agreement
EXCLU	Openings excluded from Crown managed forests
FG	Opening has achieved free growing
FTCF	Forest Tenure - Site Plan under Community Forest
FTFSM	Forest Tenure - Forest Stand Management FPC s.71
FTLEVY	Forest Stand Levy under FSM Fund Reg.
FTML	Forest Tenure - Major Licensee
FTPI	Forest Tenure - pilot agreement
FTSBF	Forest Tenure - Small Business Forest Enterprise Program
FTWL	Forest Tenure - Woodlot: Site Plan
NDAML	Natural Disturbance - area-based Major Licensee
NDCF	Natural Disturbance - Community Forest
NDFS	Natural Disturbance - forest service
NDVML	Natural Disturbance - volume-based Major Licensee
NDWL	Natural Disturbance - WL License
NREQ	Areas where SP/SMP
P87	Pre-87 areas that is either NSR, or stocked but not FG
SMPCF	Stand Management Prescription - Community Forest
SMPEX	Areas where exemptions to SMP
SMPFS	Stand Management Prescription - Forest service
SMPML	Stand Management Prescription - Major Licensee
SMPWL	Stand Management Prescription - Woodlot License
SPEX	Areas where exemptions to SP
UHCF	Unauthorized Harvest - Community Forest
UHFS	Unauthorized Harvesting - Forest Service
UHML	Unauthorized Harvesting - Major Licensee.
UHWL	Unauthorized Harvest - Woodlot License.

Appendix C - RESULTS online webhelp

RESULTS provides an interactive Help tool within the application itself. Clicking on Help within any of the screens will display a mock-up of that screen. Clicking any item or field will provide descriptions or additional information.



Appendix D - Definitions and Acronyms

In these specifications:

“**BCeID**” means British Columbia Electronic Identification, an electronic login identification that allows private sector clients to access the BC government corporate reporting system;

“**BEC system**” means biogeoclimatic ecosystem classification system, a land classification system that groups together ecosystems with similar climate, soils and vegetation (developed in British Columbia and widely used as a framework for resource management and scientific research);

“**e-FM**” means Electronic Forest Management;

“**ESF**” means the Electronic Submission Framework, a combination of technology, tools, and a website that allows clients of the Ministry of Forests and Range and of the Ministry of Sustainable Resource Management to submit data electronically;

“**e-Submission**” means electronic submission;

“**FDP**” means Forest Development Plan under the FPCBCA;

“**FIA**” means Forest Investment Account;

“**FTA**” means Forest Tenure Administration system;

“**FPC**” means Forest Practices Code;

“**FPCBCA**” means *Forest Practices Code of British Columbia Act*;

“**FRPA**” means *Forest and Range Practices Act*;

“**GML**” means geography mark-up language;

“**licensee**” means agreement holder under the *Forest Act* or BC Timber Sales Manager;

“**ministry**” means Ministry of Forests and Range;

“**NRFL**” means non-replaceable forest licence;

“**Offset**” means a period (in years) between the commencement date of harvest operations and the “regeneration date” or “free-growing date”;

“**Opening status**” means the administrative stage within the life cycle of an opening. The status determines what kinds of reports can be submitted to RESULTS with respect to that opening.

“**primary harvesting activities**” means falling and yarding;

“**RESULTS**” means the *Reporting Silviculture Updates and Land Status Tracking System* online application and database, used by the ministry to track silviculture information by managing the submission of reports related to openings, disturbances, silviculture activities, forest cover, and obligation declarations as required by Forest and Range legislation;

“**User**” means a person employed by a ministry client, or the ministry, to load data into RESULTS”;

“**WLP**” means Woodlot License Plan under FRPA;

“**WTP**” means wildlife tree patch;

“**XML**” means extensible mark-up language.