

Title:	Directive – Utilization in Forest Management Planning and Timber Operations
Policy Number:	Alberta Forestry and Parks, Forest Policy, 2024, No. 01
Effective Date:	May 1, 2024
This document was updated on:	N/A

Purpose

To identify options for timber disposition holders that would provide for operational efficiencies and enable secondary use of residual timber while maintaining the sustainability of the resource.

To improve consistency between the annual allowable cut (AAC) utilization standard used in a Forest Management Plan (FMP) and subsequent implementation during timber operations.

To clarify the reporting requirements with respect to harvested timber volume that is not utilized but is within the AAC utilization standard for a given timber disposition.

Policy Context

The AAC is determined based on tree length utilization with one defined utilization standard for coniferous species and one defined utilization standard for deciduous species per sustained yield unit (SYU).

A utilization standard is defined by minimum stump diameter outside bark, minimum top diameter inside bark, stump height, and minimum log length. For the purposes of this Directive, the utilization standard used to determine the AAC will be referred to as the AAC utilization standard.

Harvest operations may vary from those assumed in the FMP for tactical reasons. To accurately represent harvest operations, a timber disposition holder can develop adjustment factors. An adjustment factor can be used to reconcile actual harvest volumes on a periodic basis where the harvest operations employed by a timber disposition holder differs from the AAC utilization standard used in the FMP.

Procedures

1. Base Line

The base line refers to the timber disposition holder’s decision to harvest and operate to the approved AAC utilization standard. No deviations to operations are requested and no options under this Directive are being considered.

2. Calculation of Adjustment Factors

A. General provisions

Any adjustment factors that are accepted will not result in a change to the approved AAC. Rather, the adjustment factor will be used to reconcile the scaled volumes to the AAC utilization standard on a periodic basis, at the end of the timber year at a minimum. The net difference between the applied adjustment factor and the AAC utilization standard shall be expressed as an increase (+) or decrease (-) in percent (%) of production volume against the approved AAC. Based on the adjustment factor, this may result in:

- an additional volume drain (including increase of applicable timber dues) to the AAC, or
- reduced volume drain to the AAC (including appropriate reconciliation of timber dues).

Adjustment factors will be considered active for the entirety of the timber year and cannot be deployed intermittently over the course of the timber year in which they were approved. Subsequently, only one (1) adjustment factor can be deployed per disposition, per scaling population.

Openings that are planned to be operated using any of the noted adjustment factors must be identified and approved in an Annual Operating Plan (AOP) and scaled under a separate scaling population.

B. Yield Curve Adjustment Factors

Upon notification to the Director of Timber Production and Audit (TPA), timber disposition holders may develop alternate yield estimates if they plan on deviating from the AAC utilization standard. These alternate yield estimates are used to provide the estimated deviation from the AAC utilization standard yield estimates for any harvest system. An adjustment factor shall be calculated using this process for the following:

- a) Operational utilization standard; and/or
- b) Cut to length (CTL) or preferred length processing.

These alternate yield estimates can be determined during:

- the preparation of an FMP; or
- implementation of the FMP but prior to reporting produced volume from harvest operations.

If prepared during FMP development, the alternate yield estimates will be used to determine adjustment factors:

- for coniferous and/or deciduous volume (as applicable).
- specific to the unique scaling population of harvest areas.
- separated by FMP yield stratum and age class.

Additional stand or harvest area level surveys may be required to enhance or support the calculated adjustment factor (see **Appendix 1 (A1.1 and A1.3)**) if harvest operations are not

being applied consistently with the alternate yield curve. Results from these surveys must be provided on request for auditing and monitoring purposes.

Additional procedural detail regarding yield curve development can be found in **Appendix A1.2**.

C. Field Sampling or Survey Adjustment Factors

Upon notification to the Director of Timber Production and Audit (TPA), timber disposition holders have the option to prepare and submit a field sampling or survey program. Data from these programs would be used to develop and apply an adjustment factor for an operational deviation. Adjustment factors are used to reconcile the operational deviation against the AAC utilization standard for the following:

- a) Operational utilization standard;
- b) CTL or preferred length processing (where a disposition holder plans to deviate from AAC utilization standard);
- c) Solid wood defect volume; or
- d) Undersize trees.

Reporting Requirements

Base Line – if a timber disposition holder does not seek to employ an adjustment factor as described in this Directive and operations align with the AAC utilization standard, then no reporting of residual timber is required.

Reporting under either yield curve or field sampling or survey adjustment factor options must be completed for all operations within a given Timber Year.

Yield Curve Adjustment Factors – Harvest volumes computed using an adjustment factor will need to be reconciled with the baseline, or approved AAC. As part of the notification process to the department, the timber disposition holder must propose the frequency of this reconciliation, whether it be monthly, annual, or other. The net difference between the operational specification employed and the AAC utilization specifications shall be expressed as an increase (+) or decrease (-) in % of production against the AAC. As per **Figure 1** in **Appendix 1 (A1.1)**, if operations are not aligned with the specified alternative utilization standard, the department may require additional field sampling or surveys to support this deployment.

The department will determine the most appropriate method to facilitate the application of any calculated adjustment factor, whether through a volume compilation form (TM44) or manual entry timber return (TM7 or equivalent). The adjustment will be applied to the noted volume difference as proposed by the timber disposition holder, as provided in the example in **Table 2**.

Field Sampling or Survey Adjustment Factors. As per **Table 1**, any adjustment factor will need to be reconciled with the baseline (i.e., approved AAC). As the field sampling or survey data is collected in real-time during harvest operations, the adjustment will be applied to the noted volume difference as proposed by the timber disposition holder, monthly via manual timber return (TM7 or equivalent), or as otherwise approved.

Compliance/Enforcement

The department will monitor and audit activities related to this Directive, including any required survey or field sampling submissions. If it is discovered through department monitoring or auditing processes that a proponent is not consistently applying any approved operational deviations, or is submitting incomplete or inaccurate records, the department may revoke any such approval and/or may issue administrative penalties for contraventions of the *Forests Act* and applicable regulations.

If not previously identified and approved, as enabled by this Directive, any residual timber in a harvest area that meets the AAC utilization standard may be considered waste and could be assessed appropriate timber dues (as well as drained against the approved AAC). In some cases, compliance and/or enforcement action(s) could also follow. These considerations are consistent with Timber Management Regulation 76.1(a), 78.1(1), 100(1)(b) and 100(1)(e).

Definitions

Annual Allowable Cut (AAC): The total volume of timber that may be harvested in one year or the total amount of forested land on which timber may be harvested in one year (s.1(a) *Forests Act*).

Cut to Length (CTL): A harvest processing system in which trees are delimbed and bucked into smaller lengths before being transported. Common CTL operations include processing a random top piece to minimize volume loss.

Preferred Length: A CTL harvest processing system where trees are delimbed and bucked into smaller lengths but a random top piece is not created.

Harvest Area: a treed area, identified by a unique opening number, that has been harvested or is planned for harvest for the purpose of obtaining fibre to produce various wood products such as lumber and pulp.

Sustained Yield Unit (SYU): a defined geographic area upon which the forest management plan (FMP) timber supply is run; it is used for planning sustainable timber harvest levels. The default area defined as an SYU is a forest management unit (FMU) but can be another defined area as approved by Alberta.

Operational Utilization Standard: An alternative utilization standard that can be deployed operationally, defined as an approved deviation from the AAC utilization standard for one or more of: the minimum stump diameter outside bark, minimum top diameter inside bark, stump height, and/or minimum merchantable log length for either conifer or deciduous species.

Timber: all trees living or dead, of any size or species and whether standing, fallen, cut, or extracted (s.1(l) *Forests Act*).

Residual timber: "timber" as described above that remains in a harvest area, after operations have been completed but before debris disposal has occurred.



AAC Utilization Standard: a utilization standard as defined in the *Forests (Ministerial) Regulation* (s.2(18.1) Timber Management Regulation). The minimum tree size an operator must harvest and utilize for a given harvest authority. The calculation of the allowable cut for the disposition is based on this same standard.

Contact Information

Director, Timber Production and Audit
Forest Stewardship and Trade Branch, Forestry Division, Alberta Forestry and Parks

Director, Forest Planning
Forest Stewardship and Trade Branch, Forestry Division, Alberta Forestry and Parks

Director, Reforestation, Inventory and Biometrics
Forest Stewardship and Trade Branch, Forestry Division, Alberta Forestry and Parks

Authorities

Timber Management Regulation s.76.1, 78.1(1), 81(4)(a), 82(2)(a), 87(3)(a), 99, 100(1)(a), 100(1)(a.3), 100(1)(b), 100(1)(e)
Forests (Ministerial) Regulation s.9
Scaling Standards of Alberta

Original signed by:

Date:

Ken Greenway, PhD, RPF
Executive Director
Forest Stewardship and Trade Branch
Alberta Forestry and Parks

May 1, 2024

Appendix 1. Utilization Options and Approval Requirements

The following provides an overview of the utilization options available, minimum requirements for any field sampling or surveys, and a general process for reference.

A.1.1 Overview of Available Options

Table 1. Utilization Options Summary

OPTION/SCENARIO	DEPLOYMENT	ADJUSTMENT FACTOR	RECONCILED ¹ TO APPROVED AAC	FIELD SAMPLING OR SURVEY REQUIRED ²	REPORTING ⁴
Base Line (Operations as per AAC Utilization Standard)	N/A	N/A	No	N/A	As per Forests Act/TMR
Operational Utilization Standard	Yield curve (FMP development or implementation)	+/- reported production volume (m ³)	Yes	No ³	Periodic adjustment ⁵
	Operations only (no yield curves)	+/- reported production volume (m ³)	Yes	Yes	Monthly TM7
Cut to Length/Preferred Length	Yield curve (FMP development or implementation)	+/- reported production volume (m ³)	Yes	No	Periodic adjustment
	Operations only (no yield curves)	+/- reported production volume (m ³)	Yes	Yes	Monthly TM7
Solid Wood Defect	Operations only	+/- reported production volume (m ³)	Yes	Yes	Periodic adjustment
Undersize Trees	Operations only	+/- reported production volume (m ³)	Yes	Yes	Periodic adjustment

¹ Reconciled refers to an adjustment of the current result of operations to the expected result based on approved AAC inputs and could include an adjustment to harvested volumes, timber dues payable or a combination of both. Volumes and timber dues may be reconciled based on contraventions to TMR 100(1)(e).

² Sampling or survey programs are required to provide supporting data to an operational change that has not been tested against FMP outcomes. These programs will need to achieve certain statistical requirements and adhere to requirements established in the Directive.

³ Where yield curves have been developed, it is expected that the operational implementation aligns with the yield curve assumptions and/or inputs. Based on department monitoring and auditing, if the operational implementation does not align with the yield curve assumptions and/or inputs (e.g., inconsistent application), supporting data may be required in the form of field sampling or surveys.

⁴ Reporting requirements may require ongoing adjustments as necessary based on department monitoring results.

⁵ Manual corrections to apply noted adjustment factor to reported production volume (e.g., monthly/annual TM44 adjustment, manual timber return).

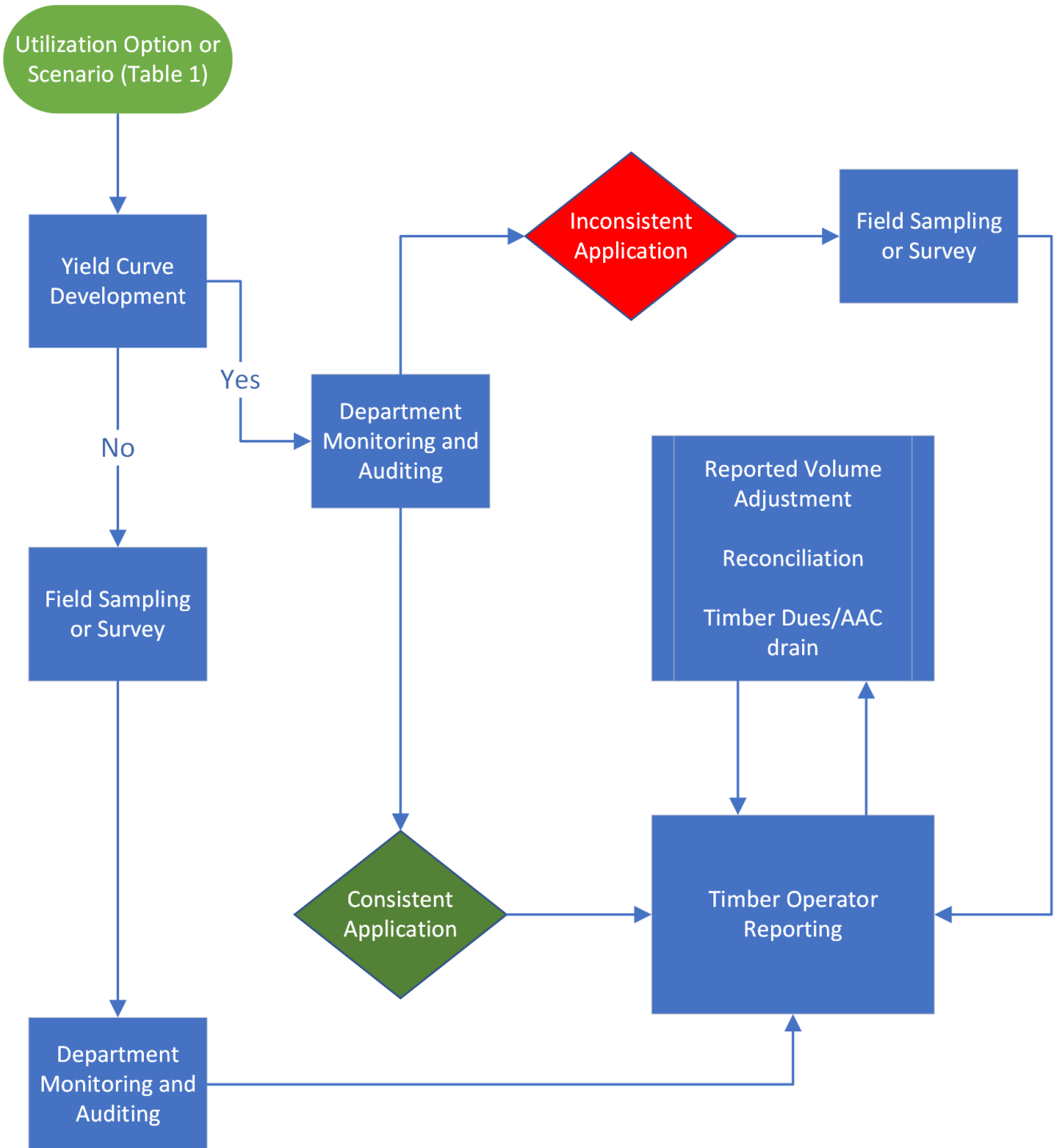


Figure 1. Flowchart of processes related to deployment of yield curves or field sampling and associated volume reporting.

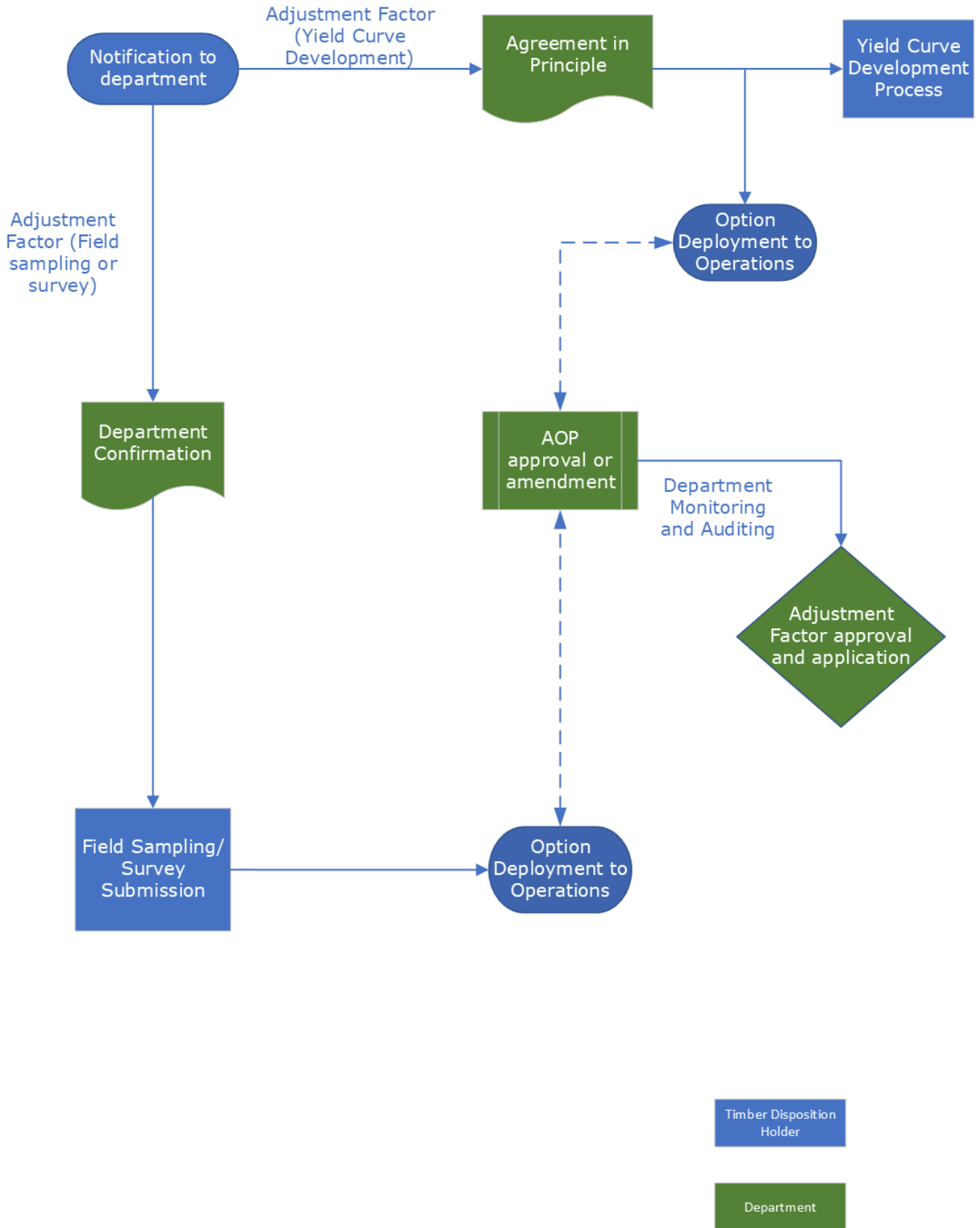


Figure 2. Flowchart of notification and approval processes related to deployment of yield curves or field sampling.

A.1.2 Yield Curve Development Process

A.1.2.1 A timber disposition holder may propose the development of an alternate yield curve where an adjustment factor could be derived and applied to either 1) an operational utilization standard or 2) to cut to length (or preferred length) operations or to both concurrently.

Timber disposition holder(s) need only notify the department of their intention to pursue this option. The department will respond to the notification with an agreement-in-principle that will, at a minimum, highlight that the process for yield curve development will follow the same process as set out in Annex 1 of the Alberta Forest Management Planning Standard (AFMPS).

To facilitate an adequate adjustment(s) of reported volume, the timber disposition holder will, as a minimum deliverable, provide a table like the example in **Table 2**, for all actual harvest areas by Timber Year, to a minimum of the FMP strata.

Upon notification by the department, timber dispositions holders may deploy the proposed alternate operation (operational utilization standard or cut to length/preferred length) in harvest areas provided they have been identified in an AOP or an amendment to an AOP. Note that alternate yield curves developed during the implementation of an FMP must be completed prior to reporting produced volume from harvest areas.

Table 2. Example of impact by Natural Stratum (Base 10)

Stratum (Base 10)	Age Class	Harvest area	Conifer Volume/ha (AAC Utilization Standard)	Conifer Volume/ha (alternative Utilization Standard)	Total FMP base line (AAC utilization)	Alternative Operations (alternative utilization)
C-PI	80	64.2	79.3	75.3	5,091.1	4,836.5
C-PI	110	31.1	135.7	133.0	4,220.3	4,135.9
C-PI	130	45.0	162.0	160.4	7,290.0	7,217.1
C-Sw	100	78.5	149.8	139.3	11,759.3	10,936.1
C-Sw	120	16.1	188.2	180.7	3,030.0	2,908.8
CD-Sw	100	36.7	97.1	90.3	3,563.2	3,313.8
DC-Sx	90	24.7	118.2	111.1	2,919.5	2,744.4
					37,873.4	36,092.6
						1,780.8
						4.93%

Note: overall reported production volume (unique scaling population) would be adjusted (reduced) by 4.93%, based on this example

A.1.2.2 Through a department audit or monitoring program, if it is discovered that any of the inputs used to build an adjustment factor derived from an alternate yield curve (as described under A.1.2.1) are not being applied consistently during operations (as per **Table 1** or **Figure 1**), the department may require that additional data is provided to support those inputs. This can be done through a field sampling or survey program at the request of the department. Given that the

circumstances of inconsistent application would vary between geographic regions and the option being deployed, a sampling program will require department input and approval.

At the request of the department, a timber disposition holder shall provide a field sampling or survey program to address any identified inconsistencies. Requirements for such a program would be the same as described under A.1.3.1, but the sampling intensity may be reduced.

A.1.3 Field Sampling and/or Survey Requirements

As per **Figure 2**, a submitted field survey or sampling program requires department confirmation. Department confirmation is a conditional approval upon acceptance, whereby the department may provide additional input or feedback and reserves the right to reject or return any submission that does not meet the following minimum requirements.

A.1.3.1 In lieu of an alternate yield curve, a timber disposition holder also has the option to propose a field sampling process (or survey process) for:

- 1) an operational utilization standard,
- 2) a cut to length (or preferred length) operation,
- 3) an accounting for solid wood defect that might be left because of processing in a harvest area, or
- 4) an accounting for undersize trees that are harvested.

For any of instances above, the minimum requirements include:

- i. Identification of the selected option or scenario (see **Table 1**).
- ii. Description of the sampling or survey methodology and the compilation procedures (if applicable).
- iii. Proposed deliverables and associated timelines for data collection and compilation.
- iv. Proposed reporting mechanism and adjustment factor application.

In addition to the minimum requirements in i-iv above, specific requirements may also be required depending on the option/scenario chosen. See A.1.3.1.1 through A.1.3.1.4 for these specific requirements.

Note: *there may be additional requirements upon department review if any of these options are selected and deployed concurrently.*

A.1.3.1.1 Operational Utilization Standard

Any sampling methodology must be submitted with the following considerations:

- a) If methodology includes an assessment or tally of alternate butt or top diameters, this can be proposed for linear top piles, or for debris piles.
 - a. Linear measurements shall target a minimum of 10 metres evaluated for every 200 metres of lineal length (5%) of top (processed) piles or agreed to by the department.
 - b. Debris pile measurements shall target a minimum evaluation of 1% of the total number of debris piles or as agreed to by the department.
- b) The Provincial Utilization Standard Conversion Tool can be used as a guideline but cannot be used to generate an estimated adjustment factor.



A.1.3.1.2 Cut to Length or Preferred Length Processing

Any sampling methodology must be submitted with the following considerations:

- a) CTL specifications must be clearly articulated.
- b) Must include sampling intensity and rationale – otherwise department will default to a minimum sampling requirement of 5% of all harvest areas with at least 1 sample or survey completed; and
- c) Sampling must be stratified random or systematic.
- d) The Provincial Utilization Standard Conversion Tool can be used as a guideline but cannot be used to generate an estimated adjustment factor.

A.1.3.1.3 Solid Wood Defect

Any sampling methodology must be submitted with the following considerations:

- a) Any defect to be sampled must be consistent with what is defined as “allowable defect” in the Scaling Standards of Alberta (see 1-7 below) – any other defect cannot be considered.
 - a. Scaled (at mill) defect data cannot be combined with residual harvest data as part of the adjustment factor calculation.
- b) Must include sampling of both dispersed and accumulated (processed material roadside or piled) residual timber.
- c) Defect assessment must be completed by certified scaler; and
- d) Must include sampling intensity and rationale – otherwise department will default to a minimum sampling requirement of 5% of all harvest areas with at least 1 sample or survey completed.

Allowable defect (can be deducted from the gross volume) in the Scaling Standards of Alberta includes the following types¹:

1. Heart rot
2. End rot
3. Sap rot
4. Cat Face
5. Crook/Sweep
6. Crack
7. Crotch/Fork

Solid wood defect is therefore defined as the allowable defect (as outlined in the 7 types above) and cull logs that are left in a harvest area and are not scaled.

¹ For oriented strand board (OSB) and pulp production, allowable defect only includes “soft rot and missing wood (voids due to rot)”: or 1-3 only. Cull logs are defined as trees and/logs where >2/3 of the volume is attributable to deductible defect; in which case the entire tree/log has a net zero volume. Both allowable defect and cull logs are measured at the time of scale based on hauling from a harvest area. During FMP development, gross merchantable volume yield curves are reduced for the volume of both allowable defect and cull logs as obtained from scaling data – this is commonly referred to as “cull”, “cull %”, or “cull reduction factor”.

A.1.3.1.4 Undersize Trees

Undersize trees are defined as a full tree that does not meet the approved AAC utilization standard for a given disposition as per Timber Management Regulation 81(4)(a), 82(2)(a) or 87(3)(a). Alberta recognizes that when undersize trees are harvested it can be difficult to distinguish it as a tree versus the top of an otherwise merchantable tree when scaled. Because of this, the volume of these undersized trees is drained against the AAC but should not be as they were not included in the AAC calculation. To account for this, the approved adjustment factor for undersize trees will be used to adjust the FSTB records to reflect the component that is product code 99 (for full trees only) and not AAC chargeable volume.

Any proposed sampling methodology must be submitted to the Director of TPA with the following considerations:

- a) Ideally completed prior to processing operations (pre-harvest is preferred).
- b) Proposal must include how the timber disposition holder intends to demonstrate or provide evidence that undersize trees are being utilized.

Note - *Where an exception to the general rate of timber dues is being sought as per Timber Management Regulation 81.1(3) for marginal stands of timber, any product code 99 (undersized trees) identified using an adjustment factor must be excluded.*