

VOIT

Values
Objectives
Indicators
Targets

2008 Detailed Forest Management Plan
Tolko Industries Ltd.
Footner Forest Products Ltd.

Provided to HLFPAC
November 6, 2007

(accounts for VOIT discussions since July 3/07 PAC meeting)

Document Changes:

December 4, 2007

1. **VOIT 1.1.1.7**
 - a. Changed Target to read “Manage regenerating areas to maintain balance of cover types across the DFA”. Now captures the flexibility allowed with strata balancing
2. **VOIT 1.2.2.1**
 - a. Added VOIT from current SFM Plan
 - b. Compliance with operational plans that protect critical wildlife zones
3. **VOIT 1.3.1.1**
 - a. Objective and Target wording were changed by Alberta
4. **VOIT 1.3.1.2**
 - a. Objective and Target wording were changed by Alberta
5. **VOIT 1.3.1.3**
 - a. Changed to make target more positive as suggested by auditors.
6. **VOIT 1.3.1.4**
 - a. Additional comments
7. **VOIT 3.2.3.1**
 - a. Additional comments
8. **VOIT 5.2.4.1**
 - a. Additional comments
9. **VOIT 5.2.5.1**
 - a. Changed target to “The target is to have > 80% of contract opportunities, on the DFA, offered to local businesses.” To reflect that some of our contracts (ie., planting) cannot be completed by local businesses.
10. **VOIT 6.3.1.1**
 - a. Added VOIT from current SFM Plan
 - b. Modified target to focus on improvement of # of people exposed to forest education

January 15, 2008

11. **VOIT 1.1.1.5**
 - a. Changed reference to fires in comment section to blowdown
12. **VOIT 1.1.1.6**
 - a. Added in Comments:
 - i. Landscape Scale VOIT: ensures Operational Ground Rule requirement for riparian zones were used for determining net landbase.
13. **VOIT 2.1.2.1**
 - a. Changed wording in Target
 - b. Added in Comments:
 - i. Difficult to create a Target as dispositions are seldom become available. Target could be provide annual summary of available areas, plan for the year ahead, and evaluate efforts in past year.
 - ii. This VOIT compared to 4.2.1a in the SFMP have the same purpose to maintain the landbase. The Means of Achieving Objective and Target,

and the Basis of Target will be the same where the companies will rely on inventory updates, integration with other industrial users, actively rehabilitate NSR areas, and reforest O&G areas.

14. VOIT 2.1.2.2

- a. Added in Comments:
 - i. During the SHS for the DFMP, current/historically infested areas will be sequenced to ensure that we are able to harvest the stands that are now declining rather than sequencing new, healthy areas.

15. VOIT 3.1.1.1

- a. Added in Comments
 - i. Companies to develop a monitoring program, with direction from SRD, otherwise there will be a 5% reduction in the net landbase that is allowed to be used in the TSA.
 - ii. % will be determined based on current results.

16. VOIT 3.2.2.1

- a. Added in Comments:
 - i. Operational scale VOIT, as compared to landscape scale VOIT in 1.1.1.6 that ensures OGR riparian buffers required at time of Landbase submission were used to determine Net Landbase.

17. VOIT 6.3.1.1

- a. Changed wording of indicator and target

WORKING DOCUMENT

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.1 Maintain biodiversity by retaining the full range of cover types and seral stages ³
Indicator	Area of old, mature, and young forest in each DFA subunit ⁴ by cover class ⁵
Target	<p>Over the 200-year planning horizon;</p> <p>a) <i>Gross landbase</i>: greater than X%¹ old forest, greater than Y% mature plus old forest, less than Z% young forest; and</p> <p>b) <i>Net landbase</i>: greater than X% old forest, greater than Y% mature plus old forest, less than Z% young forest.</p> <p>Note: Old forest retention shall include the full natural range of ages</p>

[1] "X" variable in target description to be determined by the FMP planning process.

[3] Seral Stage: Seral stages definitions should include the following categories: Initiation, Establishment, Aggradation (stem exclusion), Mature, and Old (Song 2002, Ecological Basis for Stand Management in Alberta). Old forest is defined as stands 40 years older than MAI culmination age.

[4] Subunit: any acceptable stratification of the DFA. Delineation of planning "subunits" for the DFA will be made during FMP planning. However, delineation should reflect ecological considerations. Planning subunits may correspond to planning compartments.

[5] Cover-classes: definition will be developed through FMP planning. In general, cover-class is a coarser grouping than the cover type (AVI stand label) but provides finer resolution than the cover groups (C, CD, DC, D) and will reflect leading species and mixedwood types.

Comments:

- Targets will be determined during the Timber Supply Analysis that will occur in 2008
- Information provided by the Natural Range of Variability will be used as a guide
- Unit of measure will be a percentage (as described above) for the Gross and Net Landbase
- Reporting will occur at the Stewardship Report (5 years after DFMP submission)

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.2 Maintain biodiversity by avoiding landscape fragmentation
Indicator	a) Range of patch ⁶ sizes by subunit and entire DFA
Target	a) A distribution of harvest area sizes that will result in a patch size pattern over the 200 year planning horizon approximating patterns created by natural disturbances

[6] Patch: a stand of forest in the same seral stage, and not split by a linear feature greater than 8m wide. Linear features in this definition include roads, pipelines, powerlines, and rivers, but does not include seismic lines.

Comments:

- This is an output of the Timber Supply Analysis.
- Reporting will be of hectares of Patch Sizes.
- Reporting will occur in the Stewardship Report (5 years after DFMP submission).

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.2 Maintain biodiversity by avoiding landscape fragmentation
Indicator	b) Area of old interior forest⁷ of each cover class by subunit and entire DFA
Target	b) Area of old interior forest will not be less than X% of each cover class over the next 200 years

[7] Interior forest: a forested area greater than 100 hectares in size located beyond edge effect buffer zone [7.2] along the forest edge [7.1]. For interior forest objective use a common age definitions for all cover classes to prevent breaking up forest patches that have a common origin date.

[7.1] Forest edge: any of the following: a) a linear disruption in forest cover greater than 8m in width, or, b) the line along which forest seral stage class changes.

[7.2] Edge effect buffer zone: 60 m where adjacent area is non-forested or less than 40 years old; 30 m where adjacent forest stand is ≥ 40 years and less than mature forest; 0 m where adjacent stand is mature forest.

Comments:

- This will be an output of the Timber Supply Analysis (constraint on harvest).
- In the DFMP: Maps and Tables of indicator at 0, 10, and 50 yrs.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.3 Maintain biodiversity by minimizing access
Indicator	Open all-weather forestry road density by subunit. Subunit is Caribou and non-Caribou areas, as well report will include for DFA.
Target	Less than Xkm/km ²

Comments:

- Companies to provide current snap shot, along with projection of roads at end of 10 years.
- Calculated as a density due to wildlife habitat concerns with fragmentation.
- Reporting in Stewardship Report (5 years following DFMP submission).

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.3 Maintain biodiversity by minimizing access
Indicator	Open seasonal / temporary forestry road length by DFA, and operating area (<i>Operating Area = subunit</i>)
Target	Less than Xkm by subunit.

Comments:

- Tracking system to be developed to know how much access has been created over the past year, 2 years, etc., as well as determine how access does not need to be tracked anymore.
- Access controlling indicator, therefore companies to monitor and plan accordingly.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.4 Maintain plant communities uncommon in DFA or province
Indicator	Area or occurrence of each uncommon plant community within DFA
Target	X% of identified community will be maintained (separate target for each identified community), assuming that % will be based on requirements to maintain a healthy community.

Comments:

- Discussion on-going within Plan Development Team (companies and SRD) of how this would be monitored on the landbase and determination of extent of community.
- Overlay of Alberta Natural Heritage Information Center data layers on proposed openings will provide a trigger for investigation.
- Companies to develop rare plant community listings.
- Reporting at Stewardship Report.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.5 Maintain unique habitats provided by wildfire and blowdown events.
Indicator	Areas of unsalvaged burned forest
Target	<p>The companies will assess fire areas on a case by case basis (with ASRD), evaluated based on distance to mill, timber types, lumber prices and other economic drivers. Unsalvaged areas will be left untouched, and for areas salvaged the following criteria will apply.</p> <p><i>Live trees:</i> Retain all unburned trees in green islands and retained patches recognizing timber condition, access, non-timber needs.</p> <p><i>Burned trees - Compartment Scale:</i> Retain greater than 10% of merchantable black trees in patches greater than 100 ha.</p> <p><i>Burned trees - Harvest Area Scale:</i> Retain greater than 10% of merchantable black trees in patches 10 -100 ha; and retain greater than 5% of merchantable black trees in small patches, single trees according to logger's choice.</p>

Comments:

- Companies to analyze previous 10 years of fires to develop a benchmark.
- Reporting at Stewardship Report.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.5 Maintain unique habitats provided by wildfire and blowdown events.
Indicator	Area of unsalvaged blowdown
Target	<p>The companies will access blowdown areas on a case by case basis with ASRD, evaluated based on distance to mill, timber types, lumber prices and other economic drivers. Unsalvaged areas will be left untouched, and for areas salvaged the following criteria will apply.</p> <p>In areas of significant blowdown, greater than X% will be left unsalvaged.</p>

Comments:

- Companies to analyze previous 10 years of blowdown and salvage activity to establish a benchmark.
- Reporting at Stewardship Report.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape scale biodiversity
Objective	1.1.1.6 Retain ecological values and functions associated with riparian zones
Indicator	Compliance with OGR
Target	Consistent with OGR

Comments:

- Landscape Scale VOIT: ensures Operational Ground Rule requirement for riparian zones were used for determining net landbase.
- 100% compliance required.
- Reporting at Stewardship Report.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.1 Landscape Scale Biodiversity
Objective	1.1.1.7 Manage the DFA to emulate natural disturbance patterns
Indicator	Proportion of cover types (C,CD, DC, & D)
Target	Manage regenerating areas to maintain balance of cover types across the DFA

Comments:

- Indicator used in the current Sustainable Forest Management Plan.
- Recording annually, summarized at the Stewardship Report.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.2 Local/stand scale diversity
Objective	1.1.2.1 Retain stand level structure
Indicator	a) 1 % volume of coniferous and deciduous/ stems residual structure within a harvest area, representative of the status (live/dead) sizes, and species by subunit and entire DFA.
Target	<p>a) A combination of single stems, clumps, and islands comprising 1% of the harvested / volume / within a subunit.</p> <p>Note: A wide range in variability in harvest area-level retention within a sub-unit is desired so long as the target level is achieved.</p> <p>Note 2: Maximum historical is 3%, but this occurred in larger openings. Smaller openings would have less retention.</p>

Comments:

- Indicator used in the current Sustainable Forest Management Plan.
- Recording annually, summarized at the Stewardship Report.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.2 Local/stand scale diversity
Objective	1.1.2.1 Retain stand level structure
Indicator	b) Percentage of harvested area by subunit with downed woody debris ⁸ equivalent to pre-harvest conditions
Target	b) X% of harvest areas having downed woody debris retained on site, by stratum, 100% of harvest blocks will have downed woody debris retained on site.

[8] Downed woody debris: wood lying at an angle of less than 45 degrees from the ground and having a diameter greater than 7.5 cm.

Comments:

- On going discussions with Alberta on requirements.
- May involve monitoring such as, DWD loading as compared to similar adjacent uncut stands (higher, equal, lower)
- Company personnel to do the monitoring by comparing to similar and adjacent uncut stands.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.2 Local/stand scale diversity
Objective	1.1.2.2 Maintain integrity of sensitive sites
Indicator	Sensitive sites (e.g. mineral licks, major game trails) by subunit and entire DFA. (listed in OGR's under section 7.7.6)
Target	Strategies to maintain consistent with provincial guidelines / ORG.

Comments:

- Reporting will be # of sites protected.
- Items to record are what is it? Where is it located (gps)?
- Cutblock updates (annual mapping) will capture buffer used to protect.
- Reporting at Stewardship Report

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.1 Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA
Value	1.1.2 Local/stand scale diversity
Objective	1.1.2.3 Maintain aquatic biodiversity by minimizing impact of water crossings.
Indicator	Forestry water crossing in compliance with Code of Practice for Watercourse Crossing within each subunit.
Target	Designs meet standards of the Code of Practice for Watercourse Crossings

Comments:

- Applies to culverts / bridges that are over 1.5 meters in diameter/span.
- Reporting of # of crossings meeting / not meeting design specifications
- Creek Crossing Database to assist with recording.
- Stewardship Reporting

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.2 Species Diversity: Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained throughout time.
Value	1.2.1 Viable populations of identified plant and animal species
Objective	1.2.1.1 Maintain habitat for identified high value species (i.e., economically valuable, socially valuable, species at risk, species of management concern)
Indicator	Area (ha) of suitable habitat within the DFA or subunit
Target	Maintain above X hectares

Comments:

- Will be a product of the Timber Supply Analysis (constraint on harvest).
- DFMP will need to show habitat availability at various stages over time (tables of hectares and maps to show spatially).
- Further meetings with ASRD wildlife biologist required.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.2 Species Diversity: Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained throughout time.
Value	1.2.2 Manage the DFA to maintain wildlife habitat and species diversity
Objective	1.2.2.1 To incorporate the needs of wildlife into operational planning to minimize the effects of operations on wildlife populations
Indicator	ASRD approved operational plans in critical wildlife zones
Target	100% compliance with operational plans

Comments: *(added December 3, 2007)*

- Current VOIT within Sustainable Forest Management Plan
- Staff and contractors must adhere to commitments within Final Harvest Plans
- Monitored annually and reported in Stewardship Report
- No variance is acceptable unless approved by ASRD

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.3 Genetic Diversity: Conserve genetic diversity by maintaining the variation of genes within species.
Value	1.3.1 Genetic integrity of natural tree populations
Objective	1.3.1.1 Retain "wild forest populations" for each tree species in each seed zone through establishment of in-situ reserves by the organization with an approved controlled parentage program or in cooperation with Alberta
Indicator	Number and area (ha) of in situ genetic conservation areas
Target	Number (X) of genetic conservation areas for each seed zone conforming with Section 20 of Standards for Tree Improvement in Alberta

[9] Wild: genetic materials of native species originating from natural regeneration (Standards for Forest Tree Improvement in Alberta).

Comments:

- Indicator is for identified stands/forests that would be valuable for their genetic qualities and assistance in collected genetic material (eg., seed) over time.
- Companies will cooperate with Alberta for this program.
- Reporting will be area (ha) and location.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.3 Genetic Diversity: Conserve genetic diversity by maintaining the variation of genes within species.
Value	1.3.1 Genetic integrity of natural tree populations
Objective	1.3.1.2 Retain wild forest genetic resources through ex-situ conservation
Indicator	Number of provenances and genetic lines in ex-situ gene banks and trials
Target	Active ex-situ conservation program for all Controlled Parentage Program plan species and other species in cooperation with Alberta

Comments:

- Indicator is for information purposes only, to show that the companies are involved in either Controlled Parentage Programs or Genetics / Tree Improvement Agreements within Alberta.
- Tolko has recently signed on for 2 agreements.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.3 Genetic Diversity: Conserve genetic diversity by maintaining the variation of genes within species
Value	1.3.1 Genetic integrity of natural tree populations
Objective	1.3.1.3 To ensure that cutblocks are reforested with genetically diverse seedlings
Indicator	The amount of area(ha) planted with seedlings from native seed
Target	>75% of areas planted with native seed

Comments: *(changed December 3, 2007)*

- VOIT used in the current Sustainable Forest Management Plan.
- Indicator and Target have been changed to measure area planted with seedlings from native seed. Suggested by auditor to make VOIT a “positive”.
- Tolko will actively collect seed from identified seed zones
- Acceptable variance is +/- 5%

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.3 Genetic Diversity: Conserve genetic diversity by maintaining the variation of genes within species
Value	1.3.1 Genetic integrity of natural tree populations
Objective	1.3.1.4 To ensure that cutblocks are reforested with genetically diverse seedlings
Indicator	Native seed used in operational reforestation will be best suited to the area being reforested.
Target	Seed deployment will comply with ASRD guidelines for movement of seed.

Comments:

- VOIT as used in the current Sustainable Forest Management Plan.
- Basis for target: Standards for Tree Improvement in Alberta
 - ASRD standards specify seed zones and guidelines for seed improvement
- Seedlots used compared to seed zones / locations where seedlings were planted
- No variance is acceptable unless approved by SRD.

CCFM Criterion	1. Biological Diversity
CSA SFM Element	1.4 Protected Areas - Respect protected areas identified through government processes
Value	1.4.1 Areas with minimal human disturbances within managed landscapes
Objective	1.4.1.1 Integrate transboundary values and objectives into forest management
Indicator	Stakeholder consultation
Target	Ongoing consultation with relevant protected areas agencies

Comments:

- Alberta has indicated this VOIT is not a avenue to establish protected areas.
- Indicator is to continue stakeholder consultation.
- Companies to report such consultation.
- Annual and Stewardship Reporting

CCFM Criterion	2. Ecosystem Productivity
CSA SFM Element	2.1 Ecosystem resilience
Value	2.1.1 Reforested harvest areas
Objective	2.1.1.1 Meet reforestation targets on all harvested areas
Indicator	Annual % of SR regeneration surveys
Target	Annually 100% of regeneration surveys will be SR

Comments:

- Target is the assumption used within the forest management plan.
- Reforestation commitment.
- Reporting annually on % of sufficiently stocked regeneration surveys.
- As per current reporting requirement in Sustainable Forest Management Plan.
- Alternative Regeneration Standard will guide how to meet this target.
- Annual and Stewardship Reporting

CCFM Criterion	2. Ecosystem Productivity
CSA SFM Element	2.1 Ecosystem resilience
Value	2.1.1 Reforested harvest areas
Objective	2.1.1.1 Meet reforestation targets on all harvested areas
Indicator	Cumulative % of reforested areas that meet reforestation target
Target	Cumulatively 100% of reforested areas will meet the reforestation targets.

Comments:

- As per previous VOIT, however this is a cumulative summary.

WORKING DOCUMENT

CCFM Criterion	2. Ecosystem Productivity
CSA SFM Element	2.1 Ecosystem resilience
Value	2.1.2 Maintenance of forest landbase
Objective	2.1.2.1 Limit conversion of productive forest landbase to other uses
Indicator	Amount of change in forest landbase
Target	A program to maintain the forest landbase. The companies will strive to reverse the loss of forest landbase through recovery efforts during coordination of activities with other users and planting operations (eg.,planting dispositions and well sites adjacent to operations, planting NSR areas, etc.).

Comments:

- Indicator to identify how the landbase is changing and are the companies able to reclaim losses.
- Difficult to create a Target as dispositions because disposition availability is irregular. Target could be to provide annual summary of available areas, plan for the year ahead, and evaluate efforts in past year.
- Summarize at Stewardship Report.
- This VOIT compared to 4.2.1a in the SFMP have the same purpose to maintain the landbase. The Means of Achieving Objective and Target, and the Basis of Target will be the same where the companies will rely on inventory updates, integration with other industrial users, actively rehabilitate NSR areas, and reforest O&G areas.

CCFM Criterion	2. Ecosystem Productivity
CSA SFM Element	2.1 Ecosystem resilience
Value	2.1.2 Maintenance of forest landbase
Objective	2.1.2.2 Recognize lands affected by insects, disease or natural calamities
Indicator	Amount of area affected
Target	<p>Area (ha) affected by significant outbreaks, infestations and natural calamities.</p> <p>(Assuming the only requirement is to report affected area on an annual basis, possibly amend plan accordingly. The companies will maintain annual forest information providing by ASRD and collect their own. Together they will adjust plans accordingly, e.g. Spruce Budworm Plan, FHP).</p>

Comments:

- Indicator is a summary of all lands affected by natural events.
- During the SHS for the DFMP, current/historically infested areas will be sequenced to ensure that we are able to harvest the stands that are now declining rather than sequencing new, healthy areas.
- Information used to enhance operational plans and within the next DFMP (2017).
- Reporting at Stewardship Report.

CCFM Criterion	2. Ecosystem Productivity
CSA SFM Element	2.1 Ecosystem resilience
Value	2.1.3 Control invasive species
Objective	2.1.3.1 Control non-native plant species (weeds)
Indicator	Noxious weed program
Target	Noxious weed program in place and implemented. Report on # of observations of noxious weeds on the FMA.

Comments:

- Companies to complete “Weed Program”, and follow during operations.
- Only able to control “forest” activities.
- Need to address all weed infestations.
- Reporting at Stewardship Report.

CCFM Criterion	3. Soil and water
CSA SFM Element	3.1 Soil quantity and quality
Value	3.1.1 Soil productivity
Objective	3.1.1.1 Minimize impact of roading and bared areas in forest operations
Indicator	Compliance with OGRs
Target	Less than 5% on average across the DFA

Comments:

- Intent is to ensure that access roads are regenerating.
- Companies to develop a monitoring program, with direction from SRD, otherwise there will be a 5% reduction in the net landbase that is allowed to be used in the TSA.
- % will be determined based on current results.
- Annual and Stewardship Reporting

CCFM Criterion	3. Soil and water
CSA SFM Element	3.1 Soil quantity and quality
Value	3.1.1 Soil productivity
Objective	3.1.1.2 Minimize incidence of soil erosion and slumping
Indicator	Incidence of soil erosion and slumping
Target	Zero instances of soil erosion and slumping.

Comments:

- Reporting of # of occurrences.
- Annual and Stewardship Report.

WORKING DOCUMENT

CCFM Criterion	3. Soil and water
CSA SFM Element	3.2 Water quantity and quality
Value	3.2.1 Water quantity
Objective	3.2.1.1 Limit impact of timber harvesting on water yield
Indicator	Forecast impact of timber harvesting on water yield.
Target	Zero Water Act penalties, compliance with FMP within acceptable limits.

Comments:

- Tied in with Watershed Analysis.
- Reporting of hectares harvested versus planned, plus any Water Act penalties.

WORKING DOCUMENT

CCFM Criterion	3. Soil and water
CSA SFM Element	3.2 Water quantity and quality
Value	3.2.2 Effective riparian habitats
Objective	3.2.2.1 Minimize impact of operations in riparian areas
Indicator	Riparian buffers maintained as outlined in OGRs
Target	Complete compliance with OGR's

Comments:

- Reporting of Environmental Incidents within Riparian buffers.
- Operational scale VOIT, as compared to landscape scale VOIT in 1.1.1.6 that ensures OGR riparian buffers required at time of Landbase submission were used to determine Net Landbase.

WORKING DOCUMENT

CCFM Criterion	3. Soil & Water
CSA SFM Element	3.2 Water quantity and quality
Value	3.2.3 Maintain water quality
Objective	3.2.3.1 To minimize the effects of timber harvesting and/or silvicultural operations on water quality and/or quantity
Indicator	Satisfactory installation & removal of watercourse crossings
Target	0% percent of the Companies watercourse crossings will require reclamation work following removal

Comments: *(changed December 3, 2007)*

- Same VOIT as currently within Sustainable Forest Management Plan.
- Keeping this VOIT to account for installation and removal of all crossings, rather than just large crossings as required under 1.1.2.3.
- Report # of crossings requiring reclamation vs. total crossings
- Means of Achieving: 1) Staff and Contractor training in watercourse crossing construction, maintenance, and abandonment, 2) Standard Operating Procedures (SOPs) for watercourse crossing construction, 3) Periodic watercourse crossing inspections
- Monitoring and Measurement: Inspections during installation & removal of watercourse crossings, 2) Annual monitoring of watercourse crossings, 3) use of updated Creek Crossing Database
- Acceptable variance: $\leq 5\%$ of all watercourse crossings will require some form of reclamation following removal.

CCFM Criterion	4. Global Ecological Cycles
CSA SFM Element	4.1 Carbon uptake and storage
Value	<i>To be determined</i>
Objective	<i>To be determined</i>
Indicator	Results of carbon budget modelling
Target	<i>To be determined.</i> Companies will commit to develop when Alberta sets Value, Objective and Target.

Comments:

- Alberta has not provided guidance on this VOIT at this time.

WORKING DOCUMENT

CCFM Criterion	4. Global Ecological Cycles
CSA SFM Element	4.2 Forest land conversion
Value	4.2.1 Maintenance of forest landbase
Objective	<i>To be determined</i>
Indicator	Results of carbon budget modelling
Target	<i>To be determined</i> Companies will commit to develop when Alberta sets Value, Objective and Target

Comments:

- Alberta has not provided guidance on this VOIT at this time.

WORKING DOCUMENT

CCFM Criterion	5. Multiple Benefits to Society
CSA SFM Element	5.1 Timber and non-timber benefits
Value	5.1.1 Sustainable timber supplies
Objective	5.1.1.1 Establish appropriate AACs
Indicator	Process described in Annex 1 is followed and standards are met
Target	Complete compliance. At or under AAC levels over any 5 year period.

Comments:

- Reporting on m3 (Annual Allowable Cut)
- Product of Timber Supply Analysis and monitored Annually and by quadrant (5 years).

CCFM Criterion	5. Multiple Benefits to Society
CSA SFM Element	5.2 Communities and Sustainability
Value	5.2.1 Risk to communities and landscape values from wildfire is low.
Objective	5.2.1.1 To reduce wildfire threat potential by reducing fire behaviour, fire occurrence, threats to values at risk
Indicator	<p>1) Percentage reduction in Fire Behaviour Potential area (ha) within the FireSmart Community Zone, <i>where target stands exist in an open compartment</i></p> <p>2) Percentage reduction in Fire Behaviour Potential area (ha) across the DFA now and over the planning horizon</p>
Target	<p>1) Reduce the area (ha) in the extreme and high Fire Behaviour Potential rating categories by X% within the FireSmart Community Zone</p> <p>2) Reduce the area (ha) in the extreme and high Fire Behaviour Potential rating categories by X% across the DFA</p>

Comments:

- Companies will work with Alberta to develop plans that meet their FireSmart plans.
- Companies awaiting Alberta to provide direction on priority community zones.

CCFM Criterion	5. Multiple Benefits to Society
CSA SFM Element	5.2 Communities and Sustainability
Value	5.2.2 Provide opportunities to derive benefits and participate in use and management
Objective	5.2.2.1 Integrate other uses and timber management activities
Indicator	Extent of various uses
Target	To be determined in the planning process. Track opportunities provided to the public.

Comments:

- Similar to VOIT in current Sustainable Forest Management Plan.
- Tracking opportunities annually and summed at Stewardship Report.

CCFM Criterion	5. Multiple Benefits to Society
CSA SFM Element	5.2 Communities and Sustainability
Value	5.2.3 Forest Productivity is maintained.
Objective	5.2.3.1 Maintain Long Run Sustained Yield Average
Indicator	Regenerated stand yield compared to natural stand yield
Target	No net decrease from the natural stand productivity

Comments:

- Continue with Growth and Yield program to prove Indicator and Target.
- Annually report progress on program, and as results are determined report on productivity (mean annual increment) in managed and natural stands.
- Alternative Regeneration Standards will assist.

CCFM Criterion	5. Multiple Benefits to Society
CSA SFM Element	5.2 Communities and Sustainability: Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits
Value	5.2.4 To ensure that there is a continuous supply of timber and non-timber benefits from the forest.
Objective	5.2.4.1 To conduct operations while minimizing impacts on areas of historical, recreational, unique ecological, aesthetic, or other land uses of significance.
Indicator	Compliance with the Historical Resources Act
Target	100% Compliance with the Historical Resources Act

Comments:

- VOIT as used within current Sustainable Forest Management Plan.
- Means of Achieving: 1) Incorporating known historical sites into operational planning, 2) Involve public in the identifying the location of historical and/or cultural sites, 3) Include the Heritage Potential Model into operational planning to better predict the occurrence of historical sites
- Monitoring & measurement: annual submission and verification of heritage assessment & annual summary of FHP's which have incorporated historical sites
- Variance: none acceptable.

CCFM Criterion	5. Multiple Benefits of Society
CSA SFM Element	5.2 Communities and Sustainability: Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.
Value	5.2.5 To support local & Aboriginal interests
Objective	5.2.5.1 To support local & Aboriginal businesses where economically feasible
Indicator	The number (%) of business and employment opportunities given to local employers and/or citizens
Target	The target is to have > 80% of contract opportunities, on the DFA, completed by local businesses.

Comments:

- VOIT as used within Sustainable Forest Management Plan.

CCFM Criterion	6. Accepting society's responsibility for sustainable development
CSA SFM Element	6.1 Aboriginal and treaty rights and aboriginal forest values
Value	6.1.1 Compliance with government regulations and policies
Objective	6.1.1.1 Implement Aboriginal Involvement Program
Indicator	Meet Alberta's current expectations for aboriginal consultation
Target	Consult at the community level with designated representatives of affected aboriginal communities

Comments:

- Report # of opportunities for consultation.
- Recording will be done on internal EMS/CSA websites.

CCFM Criterion	6. Accepting society's responsibility for sustainable development
CSA SFM Element	6.2 Public participation and information for decision-making
Value	6.2.1 Meaningful public involvement is achieved
Objective	6.2.1.1 Implement public involvement program
Indicator	Meet expectations of Section 5 of CSA Z809-02
Target	To be determined in the planning process

Comments:

- On going development for this VOIT required by Alberta.

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CCFM Criterion	6. Accepting society's responsibility for sustainable development
CSA SFM Element	6.3 Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.
Value	6.3.1 Encourage education of stakeholders and public on the subject of forestry.
Objective	6.3.1.1 To increase the knowledge & awareness of forest management planning & operations
Indicator	The number of opportunities to increase awareness of forestry.
Target	Continual improvement in the number of mechanisms used.

Comments:

- Modified VOIT from the current Sustainable Forest Management Plan