

MISTIK MANAGEMENT LTD.

**2019 20-YEAR FOREST MANAGEMENT PLAN** 

Volume II Document IV- Values, Objects, Indicators, and Targets (VOITs)

# 2019 FOREST MANAGEMENT PLAN – VOLUME II Values, Objects, Indicators, and Targets (VOITs)

for the

# Mistik and L&M Forest Management Agreement (FMA) Areas



# For the 20-year period from April 1, 2019 to March 31, 2039

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#### **1.0 Executive Summary**

This document demonstrates the input of the public and the requirements of the Forest Management Planning (FMP) Standard, Saskatchewan Environment Code (September 5, 2017). Mistik & L&M have identified twenty-seven quantifiable indicators and targets of sustainable forest management that will be monitored and reported on during the term of Mistik's 2019 20-Year Forest Management Plan. Several of the indicators are based on the 2007 Forest Management Plan VOITs with a few applicable changes that were required to meet the new FMP provincial standard. The following twenty-seven quantitative indicators and targets define sustainable forest management attributes within the Mistik FMP area.

Several of the VOITs from the 2007 FMP that are no longer required under the current provincial FMP standard or which had previously been included to meet other standards (i.e. certification requirements), have been removed from this section of the plan. In Mistik's FMP annual report document however, additional sections will continue to be included to provide annual updates related to certification and other monitoring requirements. This additional information in the annual report is not being provided for ministry approval or monitoring, but to have all the information related to Mistik's operations available for the public and other interested parties in a single document.

A summary of provincial standard VOIT requirements & associated indicators can be found on the following page in Table 1, followed by detailed information related to each VOIT in section 2.0.



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27. Stakeholder engagement





#### 2.0 VOIT Details

Criterion 1 – Biological Diversity Element 1.1 – Ecosystem Diversity Value 1.1.1- Natural Range of Variation Objective 1.1.1.1- Conservation of the Biological Diversity of Saskatchewan's Forests

#### Mistik Indicator #1: Age class distribution







Descriptor	Details		
Current Status	120,000 100,000 60,000 40,000 0 0 0 0 100 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 Age class		
Accortable Verience	N/A		
	N/A		
Most Recent Assessment	August 2017		
Source of Measurement Data	GIS forest inventory, harvest activity tracking, tactical plan, and fire update databases		
Implementation Requirements	Land base update and age class analysis conducted by Silvacom		
Strategy to Achieve	Adhere to tactical plan		
Monitoring and Reporting Schedule	Annually by August 31 (10-year assessment cycle) – graph/table format.		
Reporting Scale	FMP Area		
Rationale for Indicator	Maintenance of age class distribution of the Mistik FMP area is important for a number of ecological values that depend on the full suite of seral stages being present on the landscape		
Rationale for Target and Variance	N/A no variance		



Criterion 1 – Biological Diversity Element 1.1 – Ecosystem Diversity Value 1.1.1 – Natural range of variation Objective 1.1.1.1- Conservation of the Biological Diversity of Saskatchewan's Forests

#### Mistik Indicator #2a: Percent of the forest landbase that is old and very old

<u>Note:</u> Mistik is proposing an alternative solution for Forest Management Planning Standard – Indicator #2. Mistik indicators 2a & 2b outline the proposed solution.

Descriptor		Details
Target	Forest land base is (managed forest for the following six forest cover type	andbase + eligible excluded forest) that is 'old' and 'very old' s:
	<u>Old</u>	Very Old
	<ol> <li>S-bS (&gt; 100 years);</li> <li>S-jP (&gt; 100 years);</li> <li>S-wS (&gt; 100 years);</li> <li>SH-all species (&gt; 100 years);</li> <li>HS-all species (&gt; 90 years);</li> <li>H-deciduous (&gt; 90 years).</li> </ol>	all (>120 years)
	The minimum thresholds identified below fire cycle and the minimum threshold of types shall be maintained in age classes	(based on natural range of variability [NRV] analysis for a 74-year he 2nd quartile for NRV) for each of the following five forest cover that are 'old' or 'very old':
	<b>1.S-bS</b> : Greater than or equal to 5% of t of which at least 10% of that total (0.5%)	ne total S-bS working forest area and eligible excluded land base, will be very old.
	<b>2. S-jP</b> : Greater than or equal to 5% of t of which at least 10% of that total (0.5%)	ne total S-jP working forest area and eligible excluded land base, will be very old.
	<b>3. S-wS</b> : Greater than or equal to 9% of of which at least 10% of that total (0.9%)	the total S-wS working forest area and eligible excluded land base, will be very old.
	<b>4. SH and HS-all species</b> : Greater than eligible excluded land base, of which at	or equal to 10% of the total mixedwoods working forest area and east 10% of that total (1%) will be very old.





Descriptor		Details				
	<b>5. H-deciduous</b> : Greater than or equal to 14% of the total H-all deciduous working forest area and eligible excluded land base, of which at least 10% of that total (1.4%) will be very old.					
	Note: The interior old forest strat very old forest stands in each sp	egy for FMA area ensures that a ecies group will be in the interior	minimum of 20% of the old and forest condition.			
Acceptable Variance	None					
Current Status	Current amount of old forest + very	old forest = 124,097 ha				
	Current Status of Old and Very Old Forest					
	Forest Cover Type	Old + Very Old (%)	Very Old (%)			
	S-bS	15%	6%			
	<u>S-jP</u>	8%	2%			
	S-wS	27%	13%			
	HS and HS- all species 9% 2%					
	H- deciduous 17% 2%					
Most Recent Assessment	August 2017					
Source of Measurement Data	Mistik's GIS forest inventory, harvest activity tracking and fire update databases					
Implementation Requirements	Land base update and age class analysis conducted by Silvacom					
Strategy to Achieve	Follow tactical plan					
Monitoring and Reporting Schedule	Annually by August 31 (10-year assessment cycle) – graph/table format.					
Reporting Scale	FMP Area – target and % of target by forest cover types listed above					
Rationale for Indicator	Maintenance of late seral stand types within the Mistik FMP area is important for a number of ecological values – age class diversity, forest structural diversity, tree species diversity and associated habitat diversity. Industrial timber extraction can, over time, completely remove late seral stand types from the forest landscape. Retention and recruitment of old forest types must be explicitly managed for in order to achieve desired levels of abundance within a landscape.					





Descriptor						Deta	ils		
	(	QUARTILE RESULTS FOR THE MISTIK FMA AREA							
		74 Year Fire Cycle							
					<b>,</b>				
	Table 14. Using a 74	Natural Rai -Year Aver	nge Lands age Fire C	scape Sum Sycle.	naries fo	the Misti	k FMA Ar	ea	
		Seral		Percent A	ea of Ea	n Vegetatio	on Class		
	Vegetation	Stage	Below	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Above	
	Pine	Young	0 - 16	16 – 39	39 – 50	50 – 59	59 – 74	74 - 100	
	325,000 ha	Immature	0 – 18	18 – 29	29 – 38	38 – 45	45 – 63	63 - 100	
		Mature Old	0 - 0.4	0.4 - 2.7	2.7 - 4.6	4.6 - 7 7 - 10	7 - 16	16 - 100 22 - 100	
	Black Spruce	Young	0 - 19	19 – 40	40 - 50	50 - 57	57 – 76	76 - 100	
	631,000 ha	Immature	0 - 16	16 - 29	29 - 37	37 - 45	45 - 83	83 - 100	
		Old	0 - 0.5	0.5 - 2.6	2.0 - 4.4	4.4 - 0	9 - 23	23 - 100	
	White Spruce	Young	0 – 17	17 – 34	34 – 42	42 – 50	50 – 67	67 - 100	
	30,000 ha	Immature	0 - 18	18 - 31	31 - 39	39 - 44	44 - 65	65 - 100	
		Old	0 - 0.8	4.0 - 9	3.2 - 0 9 - 12	12 - 17	8 - 18 17 - 28	28- 100	
	Deciduous	Young	0 – 12	12 – 30	30 – 36	36 – 43	43 – 57	57 - 100	
	403,000 ha	Immature	0 - 21	21 – 29	29 – 35	35 – 41	41 – 58	58 - 100	
		Old	0 - 1.2	1.2 - 5 7 - 14	5 - 8	8 - 11	11 – 20 25 – 40	20 - 100	
	Mixedwood	Young	0 – 15	15 – 37	37 – 44	44 - 51	51 - 67	67 - 100	
	178,000 ha	Immature	0 – 20	20 – 29	29 – 35	35 – 42	42 – 63	63 - 100	
		Mature	0 - 1.1	1.1 - 4.5	4.5 - 7	7 - 9	9 - 17	17 - 100	
		Ju		4.0 - 10	10 - 13	10 - 10	10-20	20 - 100	1
Rationale for Target and	Refer to:	Andison	. D. W.	2006.	Natural	Levels	of Fore	est Sera	al-Stage Variability on the Mistik
Variance	Manageme	ent FMA	 Area in	Saskat	chewan.	Band	aloop L	andscar	pe-Ecosystems, Belcarra, British
	Columbia,	Canada.	84 pp.	Even th	ough all	historic	al evide	nce poin	its to a ~ 50-year fire cycle for the
	Mistik FMÁ	area. Mi	stik has (	chosen to	o use the	FMA-w	ide NDE	old fore	est retention thresholds identified for
	the 2nd qu	artile of tl	he intern	nediate fi	re cvcle	of 74 ve	ears (vs.	55 yr ar	nd 100 yr fire cycles). In doing this,
	Mistik is de	monstrat	ing a 'pr	ecautiona	ary' appr	oach to	the main	ntenance	e of old forest within the FMA area.
	Refer to Vo	olume III -	– Distrib	ution of C	Old Fore	st, for th	e curren	t distribu	ution of old forest in the Mistik FMA
	area. Curre	nt amour	ts of old	forest ex	ceed tar	gets.			
						-			





Criterion 1 – Biological Diversity Element 1.1 – Ecosystem Diversity Value 1.1.1- Natural Range of Variation Objective 1.1.1.1- Conservation of the Biological Diversity of Saskatchewan's Forests

#### Mistik Indicator #2b: Standard deviation of old forest area by management unit.

Descriptor		Details	
Target	The current standard deviation of old forest area among the 13 management units for each of the five forest cover types: 1. S-bS (> 100 years); 2. S-jP (> 100 years); 3. S-wS (> 100 years); 4. SH-all species (> 100 years); 5. HS-all species (> 90 years); 6. H-deciduous (> 90 years); associated with any level of old forest amount shall not deviate by more than 5% of the modeled linear relationship of the natural range of variation of standard deviations among management units for a specified old forest amount (and never below 2%).		
Acceptable Variance	None		
Current Status			
	Forest Cover Type	Target Range (%)	Actual (%)
	S-bS	7 to 17	12.0
	S-jP	2 to 12	7.1
	SH- all species	16 to 26	19.2
	HS- all species	4 to 14	8.6
	H- deciduous	7 to 17	11.6
Most Recent Assessment	August 2017		
Source of Measurement Data	GIS forest inventory, harvest activity tracking and fire update databases		
Implementation Requirements	Land base update and age cla	ass analysis conducted by Silvaco	m Ltd.





Descriptor	Details
Strategy to Achieve	Follow tactical plan
Monitoring and Reporting Schedule	Annually by August 31 (10-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area
Rationale for Indicator	The acceptable range of how old forest levels vary between MU's for pine-dominated forest is shown as the yellow box in the Figure below. So, if the landscape median of pine-dominated old forest on the Mistik landscape is 15% (the green lines extending from the x-axis in Figure A6 below), then the historic average standard deviation of the pine-dominated old forest between the 12 MU's is 14% (the purple line below), which means the target should be 9-19% (shown by the dark and light green horizontal arrows below, respectively). There are five such relationships, one for each cover-type (see <i>Andison 2006</i> ).
	This is a simple indicator to calculate, and at least begins respecting the fact that old forest is dynamic in time and space. While not MU specific, it very clearly identifies intermediate scale old forest clustering tendencies in space. For example, consider the three distributions of old forest across the Mistik FMA in the bottom figure below. Scenario A depicts an "old forest everywhere" pattern. In this case the average old forest proportions in each MU will be very close to the overall landscape average. So, if the landscape average of old forest is 15%, then each MU will have about 15% old forest within it as well. This will result in a very low standard deviation (two in this case). From Figure A6, we can see that a landscape with an average of 15% old forest has <u>never</u> had a standard deviation as low as two. In other words, a standard deviation of two in this case is below NRV – which means that even spatial distributions of old forest (equal amounts of old forest everywhere) are unnatural.
	Scenario C on the other hand shows a highly clustered pattern of old forest on the FMA area. In fact, most MU's have zero old forest, while a small number of MU's have well over 50% old forest. This translates into a standard deviation of 27 – which is well above the predicted natural range. In other words, highly clustered old forest is also an unnatural phenomenon.
	A more "natural" distribution of old forest at intermediate spatial scales is shown in Scenario B. Almost all MU's have some old forest, but a few have moderate to high levels. The standard deviation of the percent of old forest between the MU's in Scenario B is 11 – which is within the accepted natural limits established by the indicator above.
	Note: This indicator is not meant to capture old forest patch size distribution.















Criterion 1 – Biological Diversity Element 1.1 – Ecosystem Diversity Value 1.1.1- Natural Range of Variation Objective 1.1.1.1- Conservation of the Biological Diversity of Saskatchewan's Forests

#### Mistik Indicator #3: Size class distribution of harvest events

Descriptor	Details			
Target	The targets for harvest distribution by event size class (based on a 10-year event measurement period) over the next 10 years are as follows:			
	Harvest Event Size Class (ha)	Target % Harvest Area	Acceptable Range	1
	0-100	20%	10-30%	]
	101-1500	64%	54-74%	
	1501-3500	14%	10-18%	
	3500-8000	2%	2-10%	
	>8000	0%	0-10%	
<ul> <li>forward), This target was developed using Dr. David Andison's "Pre-Industrial Forest Condition (Andison, 2007). The study developed the targets using the natural range of variation for the FN As the process for determining the event and overall event size is dependent on GIS processing controlled within the wood supply model.</li> <li>Harvest event size is the overall disturbance size of harvest events. The purpose of harvest event targets is to emulate the natural disturbance size distribution across the landscape.</li> <li>The process to determine event boundaries will follow the procedure developed by David Andis (Andison 2005, 2006a and 2006b). For this process, only events within a 10 year period (startire)</li> </ul>	e FMA area. ssing it is not t event size ndison arting in 2019)			
	overlap will be grouped together int buffered back inward 500m and the following figure).	to an event. The outer boundary will be co	ary of the combined buffers	ary (see





Descriptor		Details		
	Block Boundary		Matrix Event Boundary	
	Clustering of Cutblocks into an E	Event		
	Note: the target for large event sizes are low because it is expected that natural disturbance events will still create larger event sizes on the landbase. These targets are based on gradual and realistic improvement by moving to larger events consistent with what Mistik has shown to be possible over the past 10 years.			
Acceptable Variance	See target table above for acceptal	ble range		
Current Status	Event area distribution based on a distance, as per the Planning Stand	10-year event period 2007-: Jard.	2016 and using a 500m inter-block	
	Harvest Event Size Class (ha)	% Harvest Area		
	0-100	22%		
	101-1500	63%		
	1501-3500	13%		
	3500-8000	2%		
	>8000	0%		
Most Recent Assessment	September 2017			
Source of Measurement Data	Mistik's GIS forest inventory, harves	st activity tracking, and fire	update databases.	





Descriptor	Details
Implementation Requirements	Land base update and NEPTUNE or other GIS event-based analysis
Strategy to Achieve	Follow HEP concepts where possible (larger harvest areas, get in-get out, less long-term roads, etc.)
Monitoring and Reporting Schedule	Year 5 and Year 10 (10-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area
Rationale for Indicator	Insofar as possible, attempts are made to emulate some of the features and patterns of the dominant disturbance regimes. The primary natural disturbance agent in Mistik's FMP area is fire. Harvest areas are planned and implemented so as to emulate the diversity of landscape patterns created by fire. Historically, Mistik has planned harvest areas as 'disturbance events' utilizing a 'one-pass' system. Mistik also attempts to emulate the size class distribution of natural disturbance events. By emulating the natural, fire-origin patterns and sizes found in the boreal landscape, important ecological and associated habitat values within the FMA area are maintained.
	The Harvest event planning ("HEP") concept that combines multiple year's harvest areas to define an event is a relatively new concept for Saskatchewan and is still very much in the development stages when it comes to provincial framework. For the purposes of this FMP, HEP will be considered in conjunction with Mistik's and L&M's overall planning principles such as minimizing open/active roads ("get in- get out") and consideration for social and stakeholder concerns to the extent practical. The ministry is currently developing guidelines for HEP at the operational level which Mistik will follow once they are in effect.
Rationale for Target and Variance	The event size classes come from the Forest Management Planning Standard (September 5, 2017). The targets and acceptable variance were arrived at by assessing the results of the forest estate modeling and analyzing the project event size distribution at years 5 and 10 of the plan. There is a desire to move towards larger events, so it's not necessarily considered a negative thing if above target on the large size classes.



Criterion 1 – Biological Diversity Element 1.1 – Ecosystem Diversity Value 1.1.1- Natural Range of Variation Objective 1.1.1.1- Conservation of the Biological Diversity of Saskatchewan's Forests

# Mistik Indicator #4: Tree retention after harvest

Descriptor	Details
Target	For harvest events with >20 ha of harvest area, total retention will be an average of 9% made up of at least 4% in insular retention, including
	<ul> <li>clumps (&lt;2 ha)</li> <li>islands (&gt;2 ha)</li> <li>individual trees (in groups of 4 trees or less)</li> </ul>
	The remainder will be made up of proximal retention (connected to the block boundary). This is an alternative solution to the standard which does not have a minimum block size requirement.
	Salvage areas are excluded from this target as they are covered under Mistik Indicator #12.
Acceptable Variance	Underachievement of the retention target is unacceptable unless for salvage or forest health reasons. Retention levels will be measured when all harvesting in the event has been completed. Overachievement of retention targets is acceptable if for stakeholder or ecological reasons.
Current Status	N/A – retention was previously measured by blocks, not events.
Most Recent Assessment	August 2017
Source of Measurement Data	GIS harvest and inventory related data, aerial photography and field measurements. A sampling process will be used to determine the actual insular retention values.
Implementation Requirements	Land base update and NEPTUNE or other GIS event-based analysis. Based on the previous year's harvest, a random selection of harvest events (minimum 10%) will be measured for retention levels. Islands and clumps will be measured based on updated images of the harvest areas (GIS-based exercise). Field measurements will be conducted for single tree retention and verification of results.
Strategy to Achieve	Contractor training regarding retention selection and retention levels.
Monitoring and Reporting Schedule	Monitored annually by August 31 (5-year assessment cycle) – graph/table format.





Descriptor	Details
Reporting Scale	FMP Area – Overall retention percentage for clumps (<2 ha), islands (>2 ha) and single trees.
Rationale for Indicator	Maintenance of forest structural diversity within the FMA area is important for a number of ecological and associated habitat values. Forest retention will be representative of the forest types existing pre-harvest.
	The alternative solution based on " <b>events with &gt;20ha</b> " is being proposed because blocks less than 20 ha are not commonly harvested unless the purpose is to develop a gravel pit or clearing for other similar use and leaving the minimum percentage of retention as proposed in the standard may not be possible.
	The alternative target ( <b>at least 4% in insular retention</b> ) is being proposed as agreed to at the Planning Team meetings. A study of post fire residuals in the Mistik FMA (Andison, 2007) found that in a typical large fire event, the total residual area averaged 35% of the event size and only 5% could be considered true island (insular) residuals. 4% was considered representative merchantable timber.
Rationale for Target and Variance	Mistik & L&M believe in and have a strong history of managing for a wide range of non-timber values. This target will further contribute to non-timber values in the FMP area.



Criterion 1 – Biological Diversity Element 1.1 – Ecosystem Diversity Value 1.1.1- Natural Range of Variation Objective 1.1.1.1- Conservation of the Biological Diversity of Saskatchewan's Forests

### Mistik Indicator #5: The softwood component in hardwood stands is maintained

Descriptor	Details					
Target	Hardwood stands with a white spruce component at the time of harvest will have an average of a minimum of 200 stems/ha of white spruce when measured in an Establishment survey (early FTG) or FTG survey					
	The population of harvest areas that this target applies to will be those portions of harvest blocks that had a pre-harvest species group of H (80% or greater hardwood component) and a white spruce component (at least 10% cover of WS in the over storey or at least 20% cover of WS in the under storey layer of the SFVI).					
	Only blocks harvested after April 1, 2019 will be assessed.					
Acceptable Variance	10%					
Current Status	N/A – new indicator					
Most Recent Assessment	N/A – new indicator					
Source of Measurement Data	Mistik's GIS forest inventory, harvest activity tracking and silviculture information, survey results.					
Implementation Requirements	Land base update, pre-harvest species composition, Establishment and Free to Grow survey data					
Strategy to Achieve	Maintain small volumes of softwood in hardwood stands by using seed trees or patch retention.					
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.					
Reporting Scale	FMP Area - The population that will be reported on will be those areas that meet the above description and were surveyed (FTG or Early FTG) in that reporting year.					
Rationale for Indicator	Mistik is committed to ensuring the maintenance of the softwood growing stock within the FMP area.					
Rationale for Target and Variance	Renewal prescriptions will follow SGR's. Maintaining small amounts of softwood in hardwood dominant stands may be achieved by leaving seed trees, patch retention, or in rare cases, seeding or planting.					



Criterion 1 – Biological Diversity Element 1.1 – Ecosystem Diversity Value 1.1.1- Natural Range of Variation Objective 1.1.1.1- Conservation of the Biological Diversity of Saskatchewan's Forests

#### Mistik Indicator #6: Relative abundance of CSGs are forecasted to be maintained at next rotation

Descriptor	Details
Target	The area by stand type of regenerating stands, as measured at the Free to Grow survey, will be consistent with the transition assumptions used in the Forest Estate Modeling.
Acceptable Variance	10%
Current Status	N/A – new indicator
Most Recent Assessment	N/A – new indicator
Source of Measurement Data	Original planning inventory (forest characterization) stand type boundaries and Free To Grow survey data
Implementation Requirements	Free To Grow survey polygon calls will be compared to the original SGR stand type designations from the planning inventory. The target will be based on the original area of the original stand types and the transition assumptions that were used in the Forest Estate Modeling. The area of the regenerating stand types will be compared to these target areas. For example:





Descriptor	Details		
	5-Year Results 4500 4000 3500 3000 2500 1500 1500 1000 500 		
	0 S-WS S-BS S-JP SH-JP SH-WS HS-WS HS-JP H ■ Target ■ Actual Example		
Strategy to Achieve	Manage stand renewal/silviculture practices to promote regeneration of the original cover species group. For example, S-jP will often be scarified and left for natural regeneration of jP.		
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.		
Reporting Scale	FMP Area - The population that will be reported on will be those areas that were surveyed (FTG or Early FTG) in that reporting year.		
Rationale for Indicator	Mistik is committed to monitoring their stand transition assumptions		
Rationale for Target and Variance	Measuring stand transitions against modelled transition assumptions at the time of FTG survey is the most logical approach. Mistik recognizes that stand types can and will change after the time of FTG survey.		



Criterion 1 – Biological Diversity Element 1.2 – Species Diversity Value 1.2.1- Quantity & Quality of Forest Habitat Objective 1.2.1.1- Maintain Habitat for Forest Dwelling Species

#### Mistik Indicator #7a: Current habitat availability for Fisher vs. predicted future (modeled) supply







Descriptor	Details			
Current Status	Fisher Suitable Habitat			
	1,250,000       10 Year         1,000,000       750,000         500,000       250,000         250,000       2007       2008       2009       201       2012       2013       2014       2015       2016       Prediction         Year			
Most Recent Assessment	August 2017			
Source of Measurement Data	Anthropogenic and natural disturbance data used to update the landbase, habitat model/queries for Fisher			
Implementation Requirements	Forest inventory analysis conducted by Silvacom Ltd.			
Strategy to Achieve	Adhere to tactical plan			
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.			
Reporting Scale	FMP Area			
Rationale for Indicator	The 'coarse filter' approach to forest habitat maintenance within harvested areas serves to meet the habitat needs of most species within the FMA area.			
Rationale for Target and Variance	Mistik seeks to minimize its forestry impacts on 'species at risk' and 'species of concern'. The quantitative analysis of currently available preferred habitat supply (and future maintenance of preferred habitat) and the preparation of interpretive reports by wildlife experts assists in providing context and guidance for minimizing the environmental impacts of forest management activities.			



Criterion 1 – Biological Diversity Element 1.2 – Species Diversity Value 1.2.1- Quantity & Quality of Forest Habitat Objective 1.2.1.1- Maintain Habitat for Forest Dwelling Species

# Mistik Indicator #7b - Part 1: Habitat availability for Caribou – CM-1, CM-2, & CM-4

Descriptor			Details	
Target	No new timber harvesting or related activities will be planned for Mistik Caribou Habitat Management (CM) areas CM-1, CM-2, or CM-4 in the next 10 years.			
	Mistik-caused disturbance in each CM area will be less-than or equal to the current disturbance percentage.			
Acceptable Variance	2%			
Current Status	Current percent disturba	nces are as follows:		
	Mistik (CM) Area	Current % disturbance		
	CM-1	35%		
	CM-2	90%		
	CM-4	42%		
Most Recent Assessment	n/a new indicator			
Source of Measurement Data	Mistik GIS			
Implementation Requirements	Assess location of harve CM area	st areas annually in N	listik operating plan, assess disturbance percentages by	
Strategy to Achieve	Follow approved tactical plan			
Monitoring and Reporting Schedule	Annually by CM area			
Reporting Scale	% disturbance in each C	M area		





Descriptor	Details
Rationale for Indicator	CM-1 and CM-2 are identified as having high quality habitat potential for woodland caribou. CM-4 is known to have extensive caribou use and is vital for connectivity between the Tier 1 & Tier 2 areas that exist on the Mistik FMP area.
Rationale for Target and Variance	Small variances may be required for completing outstanding work related to previous harvesting activity in these areas or for addressing forest health, fire salvage, safety or other non-timber values.



Criterion 1 – Biological Diversity Element 1.2 – Species Diversity Value 1.2.1- Quantity & Quality of Forest Habitat Objective 1.2.1.1- Maintain Habitat for Forest Dwelling Species

# Mistik Indicator #7b – Part 2: Habitat availability for Caribou – CM-1a, CM-2a

Descriptor	Details							
Target	No new CM-1a, CM-2a areas will be planned for the next 10 years.							
	All harvest-related activities in CM-1a and CM-2a areas will follow "least-impact" forestry practices identified in the Woodland Caribou Habitat Mitigation Plan (see table below)							
	Mistik (CM) Area	Deferral timeframe	Harvest event design/sizes follow NFP* principles	Season of harvest	New access construction	Timeframe for road reclamation	Timeframe for renewal activities**	
	CM-1	10 years	n/a	n/a	None	n/a	n/a	
	CM-1a, 2a	None	Yes	Winter	Minimal – temporary	Within 1 year of harvest/haul completion	Within 1 yr. of harvest, no activity March 1- June 1.	
	CM-2	10 years	n/a	n/a	None	n/a	n/a	
	CM-3	None	Where possible	All seasons	Yes	Per current standards	Per current standards	
	CM-4	10 years	n/a	n/a	None	n/a	n/a	
	*NFP = Natural Forest **Site preparation (meo year 7 and 14. Aerial r	Patterns chanical) and tree egeneration asse	planting. Does not appl ssments will not be conc	y to regeneratior lucted between N	n assessments which March 1 - June 1 (calv	are typically done ov ving season).	on existing blocks at	
Acceptable Variance	2%							
Current Status	n/a new indicator							





Descriptor	Details
Most Recent Assessment	n/a new indicator
Source of Measurement Data	Mistik GIS
Implementation Requirements	Implement the practices outlined in Table 4-2 when operating in CM-1a or CM-2a areas
Strategy to Achieve	Follow least-impact practices as identified
Monitoring and Reporting Schedule	Annually
Reporting Scale	Compliance by practice/CM area
Rationale for Indicator	CM-1a and CM-2a have been identified as having high quality habitat potential for woodland caribou. These areas are also part of Mistik's "core" FMP area and have approved tactical plan harvest blocks. The intent is to minimize disturbance to these areas while still accessing timber. Mistik recognizes the importance in maintaining intentional, well-planned but limited forestry activities within the Tier 1 and Tier 2 areas. Entirely deferring forestry activities in these areas may increase the risk of catastrophic wildfire. Mistik and the ministry would be missing an opportunity to continue to improve the sustainable practice of forestry and promote healthy ecosystems within key caribou habitat areas.
Rationale for Target and Variance	Harvesting activity impacts can be minimized by following least-impact practices. Roads can be closed (if required for future access) or reclaimed within 1 year of harvest. It is Mistik's intent to reclaim roads as soon as possible (within 1 year of harvesting completion). Renewal activities (tree planting aerial surveys, and site preparation) will not occur between March 1 and June 1 annually (calving season). Small variances may be required for completing outstanding work related to previous harvesting activity in these areas or for addressing forest health, fire salvage, safety or other non-timber values.



Criterion 1 – Biological Diversity Element 1.2 – Species Diversity Value 1.2.1- Quantity & Quality of Forest Habitat Objective 1.2.1.1- Maintain Habitat for Forest Dwelling Species

#### Mistik Indicator #7c: Current habitat availability for Moose vs. predicted future (modeled) supply







Descriptor	Details			
Current Status	Moose Suitable Habitat			
	1,250,000 1,000,000 750,000 250,000 250,000 250,000 2007 2008 2009 2010 2011 2012 2013 2014 2014 2015 2015 2016 Projection Ver Projection Pro			
Most Recent Assessment	August 2017			
Source of Measurement Data	Mistik SFVI, harvest activities spatial data, and spatial fire database			
Implementation Requirements	Forest inventory analysis conducted by Silvacom Ltd.			
Strategy to Achieve	Adhere to tactical plan			
Monitoring and Reporting Schedule	Annually by August 31 – graph/table format			
Reporting Scale	FMP Area			
Rationale for Indicator	Mistik's 'coarse filter' approach to forest habitat maintenance within harvested areas serves to meet the habitat needs of most species within the FMA area. Moose has been identified by Mistik stakeholders as an important species to northern communities. Maintaining habitat and minimizing impacts to Moose is important to Mistik.			
Rationale for Target and Variance	Mistik seeks to minimize its forestry impacts on 'species at risk' and 'species of concern'. The quantitative analysis of currently available preferred habitat supply (and future maintenance of preferred habitat) and the preparation of interpretive reports by wildlife experts assists in providing context and guidance for minimizing the environmental impacts of forest management activities.			



Criterion 1 – Biological Diversity Element 1.3 – Genetic Diversity Value 1.3.1- Natural Genetic Diversity Objective 1.3.1.1- No loss of Natural Tree Genetic Diversity through Forest Management Activities

### Mistik Indicator #8: Seedlings are from wild or improved seed sources

Descriptor	Details
Target	No tree seedlings planted on the Mistik FMP area shall be from 'improved' seed sources.
Acceptable Variance	5%
Current Status	Percent of seedlings from improved or genetically modified seed lots: 0%
Most Recent Assessment	August 2017
Source of Measurement Data	GIS tree planting and seed lot tracking databases
Implementation Requirements	Availability of seed that is not improved or genetically modified
Strategy to Achieve	Collect seed from the FMP area. Grow seedlings to be planted directly from seed collected.
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area
Rationale for Indicator	Mistik & L&M plants ~ 1,000,000 seedlings per year (in total). Significant use of improved seed may result in 'erosion' of the genetic diversity of the tree seedlings planted in the FMP area.
Rationale for Target and Variance	Minimizing the use of improved tree seed ensures that the natural genetic diversity of planted seedlings is maintained throughout all planted areas in the Mistik FMP area.



Criterion 2 – Ecosystem Condition & Productivity

Element 2.1 – The Stability, Resilience and Rates of Biological Production in Forest Ecosystem

Value 2.1.1- Natural Ecosystem Processes

Objective 2.1.1.1- Maintain the Stability, Resilience and Rates of Biological Production in Forest Ecosystem

#### Mistik Indicator #9: Post-harvest areas are successfully regenerated

Descriptor	Details
Target	100% of surveyed post-harvest area shall meet provincial stocking requirements according to the provincial Regeneration Assessment Standard (Establishment and Free to Grow surveys).
Acceptable Variance	No variance is accepted
Current Status	Percent of post-harvest area surveyed area that meets provincial Establishment survey stocking requirements:
	2016: SR = 100%, NSR = 0%
	2018 is the first year that Free to Grow surveys are required on 2004/05 harvest areas (age 14 years) under the current standard.
Most Recent Assessment	August 2017
Source of Measurement Data	Establishment and Free to Grow survey databases / GIS
Implementation Requirements	Conduct surveys and summarize survey data for the year of survey being reported.
Strategy to Achieve	Assess NSR blocks for opportunities to improve regeneration by conducting additional silviculture activities (planting, seeding, etc.). Conduct follow-up surveys to monitor for improvement of stocking.
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M)
Rationale for Indicator	Not sufficiently regenerated (NSR) area within the harvested land base is unacceptable. Monitoring and implementing action plans to address all NSR areas is an important forest management goal. It is Mistik's goal to ensure that all harvested sites are fully stocked with acceptable tree species.
Rationale for Target and Variance	It is imperative that all harvest blocks achieve full stocking with acceptable tree species as soon as possible after harvest. All NSR harvest blocks are tracked and an action plan is developed to ensure full stocking of all NSR blocks.



Criterion 2 – Ecosystem Condition & Productivity

Element 2.1 – The Stability, Resilience and Rates of Biological Production in Forest Ecosystem

Value 2.1.1- Natural Ecosystem Processes

Objective 2.1.1.1- Maintain the Stability, Resilience and Rates of Biological Production in Forest Ecosystem

#### Mistik Indicator #10: Change in the managed forest landbase area

Descriptor	Details
Target	Less than 2% of the productive forest land base shall be converted to permanent or currently not reclaimed Mistik- and L&M-related access structures (roads and gravel / borrow pits).
Acceptable Variance	≤10% variance of the targets identified
Current Status	Percent of the productive landbase of permanent (provincial highways) and currently not reclaimed Mistik access-related structure = 1.3% (based on 2007 FMP, actual number will reset to 0 once the 2017 FMP takes effect)
Most Recent Assessment	August 2017
Source of Measurement Data	Mistik's roads database and Surface Lease file for previous operating year
Implementation Requirements	Current data (area in ha) related to non-reclaimed roads and Surface Leases
Strategy to Achieve	Minimize area disturbed by non-reclaimed roads and gravel/borrow pits. Reclaim roads and borrow pits that are no longer required.
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area
Rationale for Indicator	Access is necessary in order to conduct forestry activities. However, Mistik & L&M strive to minimize permanent loss to the productive forest land base associated with roads. Additional access is developed by a number of other agencies (gravel pits, highways, bush roads, trails, fire guards, etc.). This additional access development is beyond Mistik & L&M's control.
Rationale for Target and Variance	The amount of open road access can be maintained at less than 2% of the productive landbase over time. All Class 1 roads have been built on the Mistik FMP area. There will still be some Class 2 road to be built. Most of the roads that will be built in the future will ultimately be reclaimed.





Criterion 2 – Ecosystem Condition & Productivity

Element 2.1 – The Stability, Resilience and Rates of Biological Production in Forest Ecosystem

Value 2.1.1- Natural Ecosystem Processes

Objective 2.1.1.1- Maintain the Stability, Resilience and Rates of Biological Production in Forest Ecosystem

#### Mistik Indicator #11: Net area disturbed by stand replacing natural events (fire)

Descriptor	Details
Target	Net area impacted by stand replacing natural disturbance (fire) will not exceed 10% over the 10- year period.
Acceptable Variance	None
Current Status	2007-2016 Net Area Impacted by Natural Disturbance
	90,000
	80,000 10% Net Area Threshold
	70,000
	60,000
	夏 50,000
	40,000
	30,000 60,220
	20,000
	10,000
	0
	Fire
	Values will be reset to 0 once the 2019 FMP becomes enacted.
Most Recent Assessment	August 2017





Descriptor	Details
Source of Measurement Data	2016 Annual Report. Mistik's GIS forest inventory and depletions from natural stand replacing disturbances inventory
Implementation Requirements	Forest inventory analysis conducted by Silvacom Ltd.
Strategy to Achieve	Work with the Ministry of Environment in the event that stand replacing disturbances impact >10% of net area to develop an action plan to re-evaluate the FMP.
Monitoring and Reporting Schedule	Annually by August 31 – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M)
Rationale for Indicator	In the event that a significant portion of the productive landbase is disturbed by stand replacing natural events, it will be necessary to re-evaluate the FMP.
Rationale for Target and Variance	Significant losses to merchantable timber can have an impact of Mistik's HVS. If this re-planning threshold should be exceeded, Mistik will work with MOE to develop an action plan.





Criterion 2 – Ecosystem Condition & Productivity Element 2.1 – The Stability, Resilience and Rates of Biological Production in Forest Ecosystem Value 2.1.1- Natural Ecosystem Processes

Objective 2.1.1.1- Maintain the Stability, Resilience and Rates of Biological Production in Forest Ecosystem

#### Mistik Indicator #12: Proportion of a natural disturbance event retained un-salvaged

Descriptor	Details
Target	In all salvage harvesting activities occurring in natural disturbance events >100 ha, at least 20% of the disturbance area will be left unharvested.
Acceptable Variance	No variance is accepted
Current Status	From 2007-2016, 93% of the area was left unsalvaged in disturbances where salvage harvest occurred
Most Recent Assessment	August 2017
Source of Measurement Data	SFVI, harvest activities spatial data, and spatial disturbance data
Implementation Requirements	Disturbance boundary data and disturbance event area (ha)
Strategy to Achieve	Salvage harvest planning and contractor awareness training for disturbance retention requirements
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area – by event and percent retention
Rationale for Indicator	Insofar as is possible, attempts are made to emulate some of the features and patterns of the dominant disturbance regimes. The primary natural disturbance agent in Mistik's FMP area is fire. Maintenance of post-fire structural diversity and conditions contributes to important ecological and associated habitat values within the FMP area.
Rationale for Target and Variance	The targets are simple, readily measurable and effective in ensuring maintenance of individual disturbance-specific and landscape-level retention of post-disturbance structural attributes and conditions.





Criterion 2 – Ecosystem Condition & Productivity

Element 2.1 – The Stability, Resilience and Rates of Biological Production in Forest Ecosystem

Value 2.1.1- Natural Ecosystem Processes

Objective 2.1.1.1- Maintain the Stability, Resilience and Rates of Biological Production in Forest Ecosystem

# Mistik Indicator #13: Yield curve suitability; measured by actual harvest volume (m<sup>3</sup>/ha) compared to predicted volume

Descriptor	Details
Target	On an annual and five-year basis and based on updated harvest block boundaries, the total actual delivered softwood and hardwood harvest volume from all sources on the FMA area shall deviate by less than the acceptable variance (15% on a five-year basis) from the volume predicted by the yield curve estimates for the same harvested forest stands.
Acceptable Variance	15%
Current Status	Actual SW volume as a % of yield curve predicted softwood volume for 2007/16: 100%. Actual HW volume as a % of yield curve predicted hardwood volume for 2007 - 2016: 87%
Most Recent Assessment	2016 Annual Report
Source of Measurement Data	Mistik's SFVI database, FMP yield curves by development type and delivered wood database
Implementation Requirements	n/a
Strategy to Achieve	Assessment of Mistik's SFVI database and FMP yield curves by development type and delivered wood database
Monitoring and Reporting Schedule	Every 5 years
Reporting Scale	FMA Areas (Mistik/L&M)
Rationale for Indicator	Comparison of actual harvested volume outcomes versus predicted yield outcomes assist Mistik, regulators and the public in understanding and assessing the veracity of the forest yield estimates used in planning processes.
Rationale for Target and Variance	The yield curve estimates of volume for each development type are accurate as an estimate of the population of all stands within the development type. Actual volumes from individual stands within each development type may vary significantly from the average volume estimate for the development type as a whole.



Criterion 2 – Ecosystem Condition & Productivity

Element 2.1 – The Stability, Resilience and Rates of Biological Production in Forest Ecosystem

Value 2.1.1- Natural Ecosystem Processes

Objective 2.1.1.1- Maintain the Stability, Resilience and Rates of Biological Production in Forest Ecosystem

#### Mistik Indicator #14: Utilization assumption consistency and implementation

Descriptor	Details
Target	There shall be 0 Notices of Violation or Administrative Penalties for operators not meeting the current or otherwise approved utilization specifications.
Acceptable Variance	None
Current Status	0 NOV or Administrative Penalties related to the 2016/17 operating year for utilization
Most Recent Assessment	August 2017
Source of Measurement Data	Self-inspection compliance report, MoE Report on Forest Operations and any applicable enforcement actions and related corrective action plans
Implementation Requirements	Conduct self-inspections on harvesting activities for consistency with approved wood specs., assess MoE Report on Forest Operations and any applicable enforcement action documentation for the previous operating year
Strategy to Achieve	Harvest according to approved utilization standards
Monitoring and Reporting Schedule	Annually by August 31 – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M) – number of utilization- related activities assessed vs. compliance, number of Notice of Violation or Administrative Penalties assessed related to utilization.
Rationale for Indicator	The utilization assumptions specified in the yield curves are consistent with the implemented utilization specifications.
Rationale for Target and Variance	This is a compliance indicator related to FMA-approved utilization specifications. Any target less than 100% or any variance is unacceptable. 100% of corrective actions related to utilization are implemented and resolved.



Criterion 2 – Ecosystem Condition & Productivity

Element 2.1 – The Stability, Resilience and Rates of Biological Production in Forest Ecosystem

Value 2.1.1- Natural Ecosystem Processes

Objective 2.1.1.1- Maintain the Stability, Resilience and Rates of Biological Production in Forest Ecosystem

#### Mistik Indicator #15: Operational adherence to the Tactical Plan

Descriptor	Details
Target	Over the 10-year period, the area harvested outside of the Tactical Plan (T1 and T2 combined) will not exceed 15% of the total Tactical Plan area
Acceptable Variance	None
Current Status	N/A – new indicator
Most Recent Assessment	N/A – new indicator
Source of Measurement Data	Mistik's spatial cut block data and the approved Tactical Plan
Implementation Requirements	Cutover updates are completed on an annual basis. Tracking of Tactical Plan area/variance is current
Strategy to Achieve	Harvest according to approved Tactical Plan and Annual Operating Plans. Assessment of cut block boundaries compared to the approved Tactical Plan and summarizing the area harvested outside of the tactical plan as a percentage of the total tactical plan area.
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M)
Rationale for Indicator	Comparison of actual operational outcomes versus planned or scheduled outcomes assist Mistik/L&M, regulators and the public in understanding and assessing the veracity of planning processes. Mistik & L&M will be attempting to harvest the 'profile' of the working forest area over time. All stands that contribute to the wood supply for the FMP area should be targeted for harvest at some point.
Rationale for Target and Variance	The 15% target is a provincial standard



Criterion 3 – Soil & Water Element 3.1 – Quantity and Quality of Soil and Water Value 3.1.1- Minimize Loss of Quantity or Quality of Soil and Water Objective 3.1.1.1- Maintain and/or Enhance the Quantity and Quality of Soil and Water

### Mistik Indicator #16: Harvesting activities in compliance with all related requirements

Descriptor	Details
Target	100 % of harvesting activities are in compliance with provincial and federal acts & regulations, approved operating plans, and SK Environmental Code.
Acceptable Variance	None
Current Status	2016: 98.8% overall compliance (based on Mistik's self-inspection process which addresses both regulatory requirements and internal EMS certification requirements)
Most Recent Assessment	August 2017
Source of Measurement Data	Self-inspection compliance report, MoE Report on Forest Operations and any applicable enforcement actions and related corrective action plans
Implementation Requirements	Conduct self-inspections on harvesting activities, assess MoE Report on Forest Operations and any applicable enforcement action documentation for the previous operating year
Strategy to Achieve	Follow all applicable standards and legislation related to harvesting activities
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M) – number of harvesting related activities assessed vs. compliance, number of Notice of Violation or Administrative Penalties assessed related to harvesting activities.
Rationale for Indicator	Through its self-inspection process, Mistik & L&M conduct an annual office and field-based assessment of a minimum of 16 aspects related to harvesting.
Rationale for Target and Variance	This is a compliance indicator related to provincial regulatory requirements. Any target less than 100% or any variance is unacceptable. 100% of corrective actions related to non-compliance with regulatory requirements are implemented and resolved.



Criterion 3 – Soil & Water Element 3.1 – Quantity and Quality of Soil and Water Value 3.1.1- Minimize Loss of Quantity or Quality of Soil and Water Objective 3.1.1.1- Maintain and/or Enhance the Quantity and Quality of Soil and Water

# Mistik Indicator #17: Crossing activities in compliance with all related requirements

Descriptor	Details
Target	100% of watercourse crossings are in compliance with provincial & federal acts / regulations / approved operating plans /SK Environmental Code and aquatic habitat protection permits (AHPP)
Acceptable Variance	None
Current Status	0 non-compliant watercourse crossings in 2016/17 operating year
Most Recent Assessment	August 2017
Source of Measurement Data	Self-inspection compliance report, ministry watercourse crossing Inspection reports and any applicable enforcement actions and related corrective action plans
Implementation Requirements	Conduct self-inspections on crossings, assess ministry watercourse crossing inspection reports and any applicable enforcement action documentation for the previous operating year
Strategy to Achieve	Follow all applicable standards and legislation related to crossing activities
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M) – number of crossings inspected vs. number of compliant crossings, number of Notice of Violation or Administrative Penalties assessed related to watercourse crossings.
Rationale for Indicator	Protection of water resources is a critical forest management objective. A number of regulatory agencies claim some jurisdiction with respect to water resources. Established internal standard operating procedures have been made to ensure that all activity related to watercourse crossings are conducted in a manner that meets all regulatory approval conditions and operational requirements. Office and field compliance assessment of watercourse crossing activities that have occurred in the previous operating year are done.
Rationale for Target and Variance	This is a compliance indicator related to provincial regulatory requirements. A target less than 100% or any variance is unacceptable. 100% of corrective actions related to non-compliance with regulatory requirements or Mistik's EMS are implemented and resolved.



Criterion 4 – Role in Global Ecological Cycle Element 4.1 – Carbon Cycle Value 4.1.1- Productive Landbase Objective 4.1.1.1- Mitigate the Impact of the Forest and Forest Activities on the Productive Landbase

# Mistik Indicator #18: Event Duration

Descriptor	Details
Target	100% of harvest events have a duration of 10 years or less
Acceptable Variance	None. Duration may only exceed 10 years with ministry approval.
Current Status	N/A – new indicator
Most Recent Assessment	N/A – new indicator
Source of Measurement Data	Operating plans and harvest activity spatial data
Implementation Requirements	Pre-harvest conditions that allow for Harvest Event Planning (HEP) concepts to be used
Strategy to Achieve	Follow HEP concepts where possible (larger harvest areas, get in-get out, less long-term roads, etc.)
Monitoring and Reporting Schedule	Annually by August 31 and assessed at 5-years
Reporting Scale	FMP Area - number of total completed harvest events by year and number of those events that exceed a 10-year timeframe for completion.
Rationale for Indicator	Traditional "patchwork" harvesting designs do not mimic natural forest patterns and can result in increased levels of access that remain open for many years. Larger, short-term harvest activities promote a "get in–get out" philosophy and lessen the long-term impacts to the area.
Rationale for Target and Variance	The provincial HEP method requirements will be implemented immediately once the ministry determines how to incorporate multi-year events into the OP approval/reporting process. Until that time, Mistik & L&M will continue to plan and harvest as done in recent years where larger-scale, more inclusive harvest areas are designed.





Criterion 5 – Economic & Social Benefits

Element 5.1 – Economic Benefits

Value 5.1.1- Sustainable Economic Benefits over FMP Planning Period

Objective 5.1.1.1- Maximize the Economic Benefits without Compromising the Productive Capacity of Forest Ecosystem

# Mistik Indicator #19a: Utilization of harvest volume schedule (HVS)

Descriptor	Details
Target	The annual average harvest (based on a five-year period) shall not exceed the approved HVS for softwood or hardwood.
Acceptable Variance	None
Current Status	Average Hardwood Harvest (2012-2016) vs. 2007 Hardwood HVS       Average Softwood Harvest (2012-2016) vs. 2007 Softwood HVS            1,000,000 600,000 000 000 000
	*Note: The HVS will be different for the 2017 FMP
Most Recent Assessment	August 2017
Source of Measurement Data	Mistik & L&M operating plan, Ministry of Environment operating plan approval letter, scaling data
Implementation Requirements	Approved budget, contractor availability, favourable environmental conditions
Strategy to Achieve	Harvest according to approved Tactical Plan and Annual Operating Plans
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.





Descriptor	Details
Reporting Scale	FMP Area (Mistik/L&M)
Rationale for Indicator	A consistent and long-term source of merchantable timber is of profound significance for ongoing sustainability of mills, employment and timber-related economic benefits. Extraction of the timber resource is typically conducted within the context of the growth capacity of the forest. A basic notion is that timber extraction should not exceed the rate at which trees grow.
Rationale for Target and Variance	Assessment of compliance with approved harvest levels is conducted based on a five-year period. The current requirement by the province is that, over a five-year period, the average annual harvest volume shall not exceed the average annual approved harvest volumes. Harvest levels from the FMA area may vary for a number of reasons including market conditions, weather conditions, mill capacities, etc.



Criterion 5 – Economic & Social Benefits Element 5.2 – Social Benefits Value 5.2.1- Human Life and Property are protected from Wildfire Objective 5.2.1.1- Minimize Injury, Loss and Damage Caused by Wildfire

# Mistik Indicator #19b: Harvest plans designed to lower wildfire risks to communities

Descriptor	Details
Target	Work with MOE on 100% of community wildfire risks as identified by and requested by the Wildfire Branch (WFM) or within-FMA communities.
Acceptable Variance	Economic feasibility and merchantability are the key criteria when determining if fuel reduction projects can be undertaken. Operators will not be expected to harvest areas that do not meet these criteria.
Current Status	N/A – new indicator
Most Recent Assessment	N/A – new indicator
Source of Measurement Data	Wildfire Management Branch, GIS/forest inventory data
Implementation Requirements	Identified timber is of sufficient quality and quantity to meet mill requirements. Operation is feasible.
Strategy to Achieve	Assess economic feasibility and merchantability for a specific area once a request is made by either WFM or a community. If agreeable, proceed with planning in a manner which reduces fuel/fire risk and meets ministry/community objectives.
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area – number of requests made/harvest plans implemented, number of hectares harvested annually in fuel reduction projects.
Rationale for Indicator	Protection of communities from wildfire by reducing fuel levels adjacent to the community is something that Mistik/L&M can have an influence on. In the past, Mistik has completed harvesting projects resulting from specific requests made by a community to remove some or all adjacent forest cover to reduce the fire risk. As long as economic and merchantability objectives can be met, Mistik/L&M are willing to work with the ministry and communities in these cases.
Rationale for Target and Variance	All activities conducted must be with economics in mind for both the mills and contractors. Harvest activities must be in line with budgets and other company objectives/requirements.



Criterion 5 – Economic & Social Benefits Element 5.2 – Distribution of Benefits Value 5.2.1- Fair Distribution of Benefits Objective 5.2.1.1- To ensure that Other Forest Users are addressed

# Mistik Indicator #20: Stakeholder and public engagement (Public Advisory Group meetings).

Descriptor	Details
Target	Organize a minimum of 2 public engagement meetings (e.g. PAG meetings) annually
Acceptable Variance	-1 meeting
Current Status	Meetings held with t Public Advisory Group (PAG) in 2017: 2
Most Recent Assessment	August 2017
Source of Measurement Data	20-Year FMP Public Engagement Plan, meeting records
Implementation Requirements	Resources to hold 2 PAG meetings per year
Strategy to Achieve	Organize 2 public engagement meetings (PAG) annually
Monitoring and Reporting Schedule	Annually by August 31 – graph/table format.
Reporting Scale	N/A
Rationale for Indicator	To encourage and facilitate detailed involvement and input from the general public into Mistik's 20- Year Forest Management Plan processes, Mistik/L&M will hold regular meetings with the Mistik Public Advisory Group. The meetings will be a forum to disseminate information and discuss forestry-related topics that are relevant to the 20-Year FMP process. Annual report results will also be discussed at the PAG meetings.
Rationale for Target and Variance	Mistik/L&M considers it very important for the public to be involved in the 20-Year Forest Management Plan processes. A well-informed Public Advisory Group (PAG) that has significant involvement in the development of the 20-Year FMP is critical to ongoing forest management performance.



Criterion 5 – Economic & Social Benefits Element 5.2 – Distribution of Benefits Value 5.2.1- Fair Distribution of Benefits Objective 5.2.1.1- To ensure that Other Forest Users are addressed

# Mistik Indicator #21: Spatially identified non-timber resources and forest use activities.

Descriptor	Details
Target	On an annual basis, acquire and input into GIS 100% of all known 'special places', non-timber resources and non-timber forest-use activities and produce a thematic map product which can be produced as a single theme or in combination with other map products.
	Note: Mistik will keep a spatial dataset of known special places; however, due to confidentiality issues, specific details on type may not be available to the general public.
Acceptable Variance	None
Current Status	See Special Places map provided in the 2016 Annual Report
Most Recent Assessment	August 2017
Source of Measurement Data	Mistik Geographic Information System (GIS)
Implementation Requirements	Assess Mistik Geographic Information System (GIS)
	Maintain current 'special places' and non-timber forest resources and non- timber forest-use activities and associated databases annually
Strategy to Achieve	Solicit input by stakeholders and other users related to non-timber resources and forest activities.
Monitoring and Reporting Schedule	Annually by August 31 – graph/table format.
Reporting Scale	FMP Area - includes total number of "new" entries.
Rationale for Indicator	Mistik/L&M conducts its forestry activities in consultation with a number of other non-timber forest resource users. Hunting, fishing, berry-picking, mushroom-picking, nature appreciation, medicinal-plant use, and wild rice harvesting are common non-timber forest resource activities in the Mistik FMP area. Many of these non-timber forest resource activities have developed, to some extent, into commercial or semi-industrial enterprises. In the recent past, significant industries have grown (and in some cases waned) around commercial freshwater fisheries, mink-ranching, blueberry picking, and guided outfitting for deer and bear. Recently, ecotourism has become a business opportunity for





Descriptor	Details
	several northern communities. Wild rice harvesting has become the most significant non-timber forest use industry in the Mistik FMA area. A number of the small lakes and waterways in the Waterhen, Canoe Lake, Beauval, Ile-a-la Crosse, Buffalo Narrows and Dillon Management Units are actively seeded and harvested on an annual basis. Forestry operations can have significant local impact on non-timber forest resource activities. In order for Mistik/L&M to efficiently undertake meaningful consultation with non-timber forest resource users and incorporate concerns, site-specific values, etc. into operating plans it is necessary to have non-timber forest resources and non-timber forest-use activities identified and mapped to the fullest extent possible. In relation to other 'permitted' non-timber forest users (outfitters, trappers, wild rice growers and grazing permit holders) on the Mistik FMP area, Mistik receives updated hardcopy maps from the province on a periodic basis. Mistik has to manually superimpose the hardcopy maps on its own GIS forestry maps. To acquire or create the provincial maps in digital format and embed the data in Mistik's GIS would facilitate clarity of information and ease of use. Mistik will solicit the input of staff, Ministry of Environment and advisory and co-management boards regarding the location of candidate 'special places' in the FMA area.
Rationale for Target and Variance	In order for Mistik/L&M to efficiently undertake meaningful consultation with non-timber forest resource users and incorporate concerns, site-specific values, etc. into operating plans it is necessary to have non-timber forest resources and non-timber forest-use activities identified and mapped to the fullest extent possible. It is important to ensure that all known values are spatially identified.



Criterion 5 – Economic & Social Benefits Element 5.3 – Sustainability of Benefits Value 5.3.1- No Loss of Benefits Objective 5.3.1.1- Maintain or Enhance Benefits

# Mistik Indicator #22: Harvest operations are proportionally distributed across the FMA.

Descriptor			Details	
Target	Harvest area by species grouping and Planning Unit will not exceed 50% of the 10-year Forest Estate Modeling outputs in either of the first two 5-year periods .			
	Planning Unit	Species Grouping	10-Yr Harvest Area from Forest Estate Model	Maximum Harvest Area (ha) for each 5-Yr Period
		H/HS	5,508	2,754
	North	SH	828	414
	NORTH	S-WS	517	259
		S-Other	4,859	2,430
		H/HS	11,073	5,537
	West	SH	622	311
	west	S-WS	388	194
		S-Other	6,990	3,495
	Central	H/HS	23,101	11,551
		SH	2,171	1,086
		S-WS	1,353	677
		S-Other	14,595	7,298
	Divide	H/HS	7,453	3,727
		SH	854	427
	Divide	S-WS	880	440
		S-Other	4,089	2,045
		H/HS	2,507	1,254
	L 2 M	SH	432	216
	LOUN	S-WS	287	144
		S-Other	3,779	1,890
Acceptable Variance	None			





Descriptor	Details
Current Status	N/A- new VOIT
Most Recent Assessment	N/A
Source of Measurement Data	Planning inventory, tactical plan, harvest activity spatial data
Implementation Requirements	Assess cumulative harvest area (ha) by species group and planning unit during operating plan review and approval to ensure targets are not exceeded.
Strategy to Achieve	Adhere to tactical plan. Ensure that annual planned harvest by planning units will not result in exceeding acceptable variance.
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	Planning Unit
Rationale for Indicator	One of the major factors associated with total delivered wood costs is the cost of transportation. If harvesting is focused on timber close to mills in the near term, future timber transportation costs may be significantly higher as haul distances increase. Maintaining a balanced haul distance, that reflects both short haul opportunities and longer hauls - based on the location of currently merchantable timber, is desirable in order to minimize sharp increases in timber costs over time.
Rationale for Target and Variance	Significant flexibility is required in achieving the target. A variety of factors - including salvage harvesting, market conditions, weather-constraints, road condition and maintenance, changes in community dynamics – can all conspire to modify predicted haul distance.



Criterion 6 – Society's Responsibility

Element 6.1 – Aboriginal & Treaty Rights

Value 6.1.1 – Aboriginal & Treaty Rights are Respected in regard to Planning and Implementing Forestry Activities

Objective 6.1.1.1 – To ensure that Aboriginal & Treaty Rights are respected in regard to Planning and Implementing Forestry Activities

#### Mistik Indicator #23: Aboriginal community involvement in planning processes.

Descriptor	Details
Target	Provide a minimum of two opportunities annually for aboriginal communities to have input in Mistik's 20- Year Forest Management Plan processes and implementation.
	Provide notification to specific co-management/advisory boards annually if no harvesting is planned in their area. This would be used in the case where a group is inactive due to lack of forestry activity in their area and has chosen not to be in regular contact with Mistik/L&M.
Acceptable Variance	None
Current Status	The following established groups comprise the current co-management/advisory boards and represent communities within the indicated management unit on the Mistik FMP area:
	Divide Forest Advisory Council Corporation (MU 1) Pierceland/Goodsoil Public Advisory Group (MU 2, 12, 20) <sup>1</sup> Big Island Lake Cree Nation Chief and Council (MU 3) Waterhen Lake First Nation Chief and Council (MU 4) Beauval Co-management Board (MU 7) Canoe Lake Co-management Board (MU 8) Ile a la Crosse - ICS 4 (MU 9) Buffalo Narrows Mayor and Council (MU 10) Buffalo River Dene Nation Chief and Council (MU 11, 21) Birch Narrows First Nation (MU 21) <sup>2</sup> 1. Advisory group has currently voluntarily disbanded so Mistik holds an annual open house in this area.
	2. The Turner Lake MU is no longer part of the Mistik FMA. Birch Narrows has requested that they remain involved with Mistik when there is forestry activity planned for their area. They also have a small area of reserve land adjacent to the community of Dillon.
Most Recent Assessment	August 2017





Descriptor	Details
Source of Measurement Data	Records of meetings and meeting invitations/requests of previous operating year
Implementation Requirements	Maintain meeting minutes/notes and records pertaining to meeting invitations/requests.
Strategy to Achieve	Schedule opportunities for participation in planning process. Send letters annually for any inactive groups or groups where no harvest is planned in the upcoming OP for their area. Invite all identified groups to PAG meetings.
Monitoring and Reporting Schedule	Annually by August 31 – graph/table format.
Reporting Scale	FMP Area
Rationale for Indicator	Mistik/L&M is committed to a public consultation process that occurs on a regular basis as part of its annual operations planning and implementation. Specifically, Mistik/L&M facilitates representation from all 'within-FMP area' Aboriginal communities. These local co-management and advisory boards are usually comprised of representatives from various stakeholder groups. Membership on these boards is determined by local communities and interest groups. It is very important for all 'within-FMA area' Aboriginal communities to have the opportunity to be involved in a local co-management board process. The boards meet on a periodic basis (some more so than others). Mistik/L&M staff attend each board meeting to which an invitation or notification is given.
Rationale for Target and Variance	Mistik/L&M considers it very important for all 'within-FMP area' Aboriginal communities to have the opportunity to be involved in a local co-management/advisory board. Forestry-related consultation processes are defined, to a significant extent, by the local communities. The leadership in some communities choose not to interact with Mistik/L&M. In these cases, periodic public 'open-houses' are held as a surrogate to the co-management board processes. Note: See Indicator #20 for details on Public Advisory Group (PAG) meetings - and Indicator #27 for stakeholder consultation. Both forums also provide the opportunity for aboriginal communities to be involved with FMP development and implementation.





Criterion 6 – Society's Responsibility

Element 6.2 – Aboriginal Traditional Land Use and Forest Based Ecological Knowledge

Value 6.2.1 – Protection of Aboriginal Traditional Land Use and Forest Based Ecological Knowledge

Objective 6.2.1.1 – To avoid Impacting Culturally Important Sites

#### Mistik Indicator #24: Spatial Identification and protection of culturally significant Heritage and Aboriginal sites

Descriptor	Details
Target	On an annual basis, acquire and input into GIS 100% of all known locations of cultural, heritage or traditional Aboriginal forest values and develop operating plans that protect these known sites of heritage, cultural and Aboriginal forest values.
	Note: Mistik will keep a spatial dataset of known special places; however, due to confidentiality issues, specific details on type may not be available to the general public.
Acceptable Variance	None
Current Status	See Special Places Map in 2016 Annual Report
Most Recent Assessment	2016 Annual Report
Source of Measurement Data	Traditional & Aboriginal forest values and uses database and map
Implementation Requirements	Maintain traditional Aboriginal forest values and uses database and map
Strategy to Achieve	Discuss heritage and Aboriginal value locations as part of co-management and consultation processes
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area – include number of "new" sites
Rationale for Indicator	Spatial identification of traditional Aboriginal forest values and uses is the first step in protection. Upon spatial identification of these values, operational plans can be created and implemented with confidence. Cabins, sweat-lodges, hunting, fishing, berry-picking, mushroom-picking, nature appreciation, medicinal-plant use, and wild rice harvesting are common 'traditional forest use' values and activities in the Mistik FMP area. Many of these 'traditional use' activities have developed, to some extent, into commercial or semi-industrial enterprises. In the recent past, significant industries have grown (and in some cases waned) around commercial freshwater fisheries, mink-ranching, blueberry picking, and guided outfitting for deer and bear. Recently, ecotourism has become a business opportunity for several northern communities. Wild rice harvesting has become the most





Descriptor	Details
	significant non-timber forest use industry in the Mistik FMA area. A number of the small lakes and waterways in the Waterhen, Canoe Lake, Beauval, Ile-a-la Crosse, Buffalo Narrows and Dillon Management Units are actively seeded and harvested on an annual basis. Ongoing identification of sites and activities will be completed by soliciting input from staff, Ministry of Environment and advisory and co-management boards.
Rationale for Target and Variance	Mistik/L&M considers it very important that all known traditional Aboriginal forest values are spatially identified and a level of protection implemented that is agreeable to affected Aboriginal forest users.



Criterion 6 – Society's Responsibility Element 6.3 – Forest Community Well-being and Resilience Value 6.3.1 – Sustainable Forest Communities Objective 6.3.1.1 – To Contribute of the Resiliency of Communities

#### Mistik Indicator #26a: Contributions to Co-management Boards

Descriptor	Details
Target	On an annual basis, contribute financially to co-management boards according to the terms and conditions of the co-management agreement.
Acceptable Variance	20% of the 5-year target based on the terms of the agreement
Current Status	Co-management contributions in 2016: \$217,135.
Most Recent Assessment	August 2017
Source of Measurement Data	Mistik's year-end financial statements for previous operating year
Implementation Requirements	Assess Mistik's year-end financial statements to ensure compliance with the terms of the co- management agreement.
Strategy to Achieve	Comply with terms of co-management agreement; make payments accurately and on time.
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMP Area – overall contribution under the terms of the co-management agreement & any variances
Rationale for Indicator	Distribution of forestry-related socio-economic benefits occurs through a variety of means. Most economic benefits flow back to local communities through employment or contract-related activities. A unique approach that Mistik has taken to contribute economic benefits back to local communities is to pay to co-management boards a minimum fee for hardwood and softwood harvested within each community forest (management unit) associated with each local co-management board (the actual fee paid is determined by current market product prices). These funds are 'unfettered' in that they can be used for whatever purpose the co-management board deems worthy. There are currently seven co-management boards benefiting from these payments.
Rationale for Target and Variance	Mistik's co-management fee payments are directly linked to total timber volume harvested. Total timber volume harvested may vary for a number of reasons - market conditions, etc.



Criterion 6 – Society's Responsibility Element 6.3 – Forest Community Well-being and Resilience Value 6.3.1 – Sustainable Forest Communities Objective 6.3.1.1 – To Contribute of the Resiliency of Communities

# Mistik Indicator #26b: % of total annual vendor / contractor payments made to local businesses

Descriptor	Details
Target	On an annual basis, 60% of total annual vendor/contractor payments made by Mistik & L&M will be to businesses from local communities in, and adjacent to, the FMA area.
Acceptable Variance	20%
Current Status	2016: 55% of annual payments to local businesses.
Most Recent Assessment	August 2017
Source of Measurement Data	L&M accounting records and Mistik Logging Information Management System (LIMS) data from previous year. Local businesses are from the following communities: Michel Village, St. Georges Hill, Dillon, Buffalo Narrows, Canoe Lake, Jan's Bay, Cole Bay, Beauval, Ile-a-la Crosse, Waterhen, Meadow Lake, Glaslyn (L&M), and Spiritwood (L&M).
Implementation Requirements	Assess L&M accounting records and Mistik Logging Information Management System (LIMS) data
Strategy to Achieve	Source materials from local vendors whenever possible/feasible, hire local contractors where possible
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M) – overall percentage by company
Rationale for Indicator	Communities within/adjacent to, the Mistik & LM FMA areas place high value on local sources of income. This indicator provides a measure of the commitments to facilitating equitable distribution of economic benefits. This is done by working with co-management boards in developing a stable, local contractor workforce. The workforce opportunity is proportional to the harvest level associated with each co-management board's community forest area (management unit).
Rationale for Target and Variance	High rates of unemployment plague a number of communities within the Mistik FMP areas. Mistik/L&M are committed to maintaining an equitable distribution of income opportunities and are choosing to 'set the bar' at 60%. Individual contractors may change (and places of residence) but the % of total payments delivered to local communities will likely remain relatively static.



Criterion 6 – Society's Responsibility Element 6.3 – Forest Community Well-being and Resilience Value 6.3.1 – Sustainable Forest Communities Objective 6.3.1.1 – To Contribute of the Resiliency of Communities

# Mistik Indicator #26c: Percent of 'within-FMA area' communities represented in the workforce

Descriptor	Details
Target	100% of 'within-FMA area' communities shall be represented in the L&M and Mistik-related workforce.
Acceptable Variance	20%
Current Status	2016: 100% of within-FMA area communities represented in Mistik's workforce
Most Recent Assessment	August 2017
Source of Measurement Data	L&M contractor payroll records and Mistik Logging Information Management System (LIMS) data from previous year. Local businesses are from the following communities: Michel Village, St. Georges Hill, Dillon, Buffalo Narrows, Canoe Lake, Jan's Bay, Cole Bay, Beauval, Ile-a-la Crosse, Waterhen, Meadow Lake, Glaslyn (L&M), and Spiritwood (L&M).
Implementation Requirements	Maintain L&M accounting records and Mistik Logging Information Management System (LIMS) data and information derived from supervisory staff related to contractor place of residence
Strategy to Achieve	Work with local communities represented in the FMP area workforce to identify qualified persons/ contractors
Monitoring and Reporting Schedule	Annually by August 31 (5-year assessment cycle) – graph/table format.
Reporting Scale	FMA Areas (Mistik/L&M) – overall percentage by company
Rationale for Indicator	Communities within, and adjacent to, the Mistik FMP area place high value on local employment. This indicator provides a measure of the commitment to facilitating equitable distribution of employment benefits. This is done by working with co-management boards in developing a stable, local contractor workforce. The workforce opportunity is proportional to the harvest level associated with each co-management board's community forest area. Sustainable harvest levels are assessed for each management unit and the workforce is developed around the available work.





Rationale for Target and Variance Mistik & L&M are committed to maintaining an equitable distribution of employment opportunities to choosing to 'set the bar' at 100%. However, at any given time, representation may be lower due to low work volume to contractor ratios. If contractors are not committed to fulfilling their work obligation their share of the contract work may go to another individual from another community.	by ow ns,
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Criterion 6 – Society's Responsibility

Element 6.4 – Fair and Effective Decision Making

Value 6.4.1 – Involvement of Stakeholders in FMP Development and Implementation

Objective 6.4.1.1 – Improve the Engagement and Information Sharing of Stakeholders in FMP Development and Implementation

#### Mistik Indicator #27: Stakeholder Engagement.

Descriptor	Details
Target	Send letters annually to 100% of known "within-FMP area" stakeholders in areas where harvesting is proposed for the upcoming operating year. The letters will notify the stakeholder of Mistik/L&M plans to operate in their area and provide the opportunity for the individual to have input in planning process.
Acceptable Variance	None
Current Status	100% of known stakeholders received letters (2016 annual report)
Most Recent Assessment	August 2017
Source of Measurement Data	Operating plan records
Implementation Requirements	Stakeholder database with current information
Strategy to Achieve	Maintain database with current contact information for known stakeholders. Send letters during OP development.
Monitoring and Reporting Schedule	Annually by August 31 – graph/table format.
Reporting Scale	FMP Area – number of known stakeholders from areas proposed for harvest vs. number of letters sent.
Rationale for Indicator	To encourage and facilitate detailed involvement and input from within FMA area stakeholders into Mistik's 20-Year Forest Management Plan processes and implementation
Rationale for Target and Variance	Mistik/L&M consider it very important for other stakeholders on the landbase to be involved in the 20-Year Forest Management Plan processes. Mistik/L&M will respond to 100% of requests for information, input into operating plans, and meetings with stakeholders.
	Note: See Mistik Indicator #20 for details on Public Advisory Group (PAG) meetings - and Indicator #23 for Aboriginal/Co-management board meetings. Both forums also provide the opportunity for stakeholders to be involved with FMP development and implementation.