Hearst Forest

Independent Forest Audit

2012 – 2019

Arbex Forest Resource Consultants Ltd.

November, 2019

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1.0 Executive Summary

This report presents the findings of an Independent Forest Audit of the Hearst Forest (Sustainable Forest Licence # 550053) conducted by Arbex Forest Resource Consultants Ltd. The audit utilized a risk-based approach based on the 2019 Independent Forest Audit Process and Protocol. The audit term was April 1, 2012 to March 31, 2019. The audit scope covers the implementation of Phase II of the 2007-2017 Forest Management Plan (years 6, 7, 8, 9, 10), the development and implementation (years 1, 2) of the 2017-2019 Contingency Plan and the development of 2019-2029 Forest Management Plan.

The Hearst Forest is managed by Hearst Forest Management Inc. under Sustainable Forest License (SFL) # 550053. The company operates under the terms of a partnership agreement between Lecours Lumber Co. Ltd., Columbia Forest Products and Tembec Industries Inc. (now Rayonier Advanced Materials Canada G.P.) The Forest is situated within the MNRF Hearst District in the Northeast Region. One Local Citizens Committee is associated with the Forest.

While the Forest is Forest Stewardship Council certified there were outstanding issues with respect to both the Commitment and System Support Principles that are part of the Independent Forest Audit Process and Protocol requirements.

Delays in the planning process for the development of the Forest Management Plan for the Hearst Forest were significant and extended plan completion for an additional two years. As a result of the delays, a Contingency Plan was required (2017-2019) with the 2019 Forest Management Plan being produced for operations commencing in April 2019. We concluded that the 2019 Forest Management Plan targets are consistent with the achievement of plan objectives and forest sustainability.

The delays in completing the management plan can be attributed to a myriad of factors that included: technical challenges associated with the implementation of the Woodstock model, the implementation of new Ministry of Natural Resources and Forestry guidelines and directions (including the Caribou Conservation Plan), and discord amongst planning team members. The Steering Committee and senior managers at the Ministry of Natural Resources and Forestry and Hearst Forest Management Inc. were largely unsuccessful in resolving issues and disagreements among planning team members and had difficulties keeping the planning process functioning effectively.

The flawed planning process provides several critical messages that the Ministry of Natural Resources and Forestry Corporate, Regional and District Offices and management at Hearst Forest Management Inc. need to understand. Lessons can be learned with respect to the application of the Woodstock model in the Northeast Region, the role of the Steering Committee in the planning process, management oversight of

technical/professional staff, issue resolution and collaborative approaches to decision-making and problem-solving.

This audit identified several other issues. The Sustainable Forest License holder needs to ensure that necessary silviculture treatments (i.e. site preparation, tending) are adequately resourced and implemented if the long-term management direction and caribou conservation plan objectives are to be achieved.

Slash management requires improvement and monitoring.

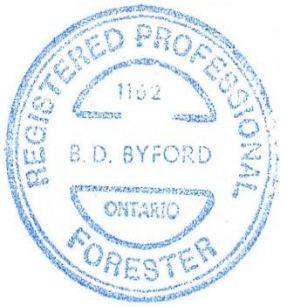
Water crossings are a continuing source of debate and disagreement between the Hearst Forest Management Inc. and the District Office, which interferes with the effective implementation of the Forest Management Plan.

The Ministry of Natural Resources and Forestry District and Regional Office did not fully meet Silviculture Effectiveness Monitoring program direction. As administrators of the Forest, with responsibility for the oversight of investments in silviculture, effective monitoring must be implemented, and reporting must be comprehensive, in order that survey results can be analyzed and incorporated in forest management planning and programs.

There were positive findings associated with the delivery of the forest management program. The area renewed is aligned with the area harvested and our field site inspections found stocking densities of renewal target species (i.e. conifer and poplar) were generally high. The in-compliance rate of forest operations was high, water crossing installations and road decommissioning efforts were well done. Forest Management Plan objectives were largely achieved, or progress was being made towards the achievement of the Long-Term Management Direction.

The audit team concludes that management of the Hearst Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Hearst Forest Management Inc. Licence # 550053.

The Forest is being managed consistently with the principles of sustainable forest management as assessed through the Independent Forest Audit Process and Protocol.



Bruce Byford

Bruce Byford R.P.F.
Lead Auditor

2.0 Table of Findings

Table 1: Findings

Concluding Statement:
The audit team concludes that management of the Hearst Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Hearst Forest Management Inc. Licence # 550053. The Forest is being managed consistently with the principles of sustainable forest management as assessed through the Independent Forest Audit Process and Protocol.
Findings
Finding # 1: a) The implementation of the planning process strained relations amongst planning team members and resulted in frustration, communications breakdowns and a dysfunctional working environment. b) The 2017 Forest Management Plan Steering Committee and senior managers from the Ministry of Natural Resources and Forestry and Hearst Forest Management Inc. were not successful in resolving issues and disagreements among planning team members. c) There was a lack of training and understanding of the Woodstock model and the interpretation of the model outputs. **Finding # 2:** The slash management program requires improvement and monitoring. **Finding # 3:** Timely and effective tending treatments are not consistently implemented. **Finding # 4:** The lack of a shared understanding and interpretation of water crossing requirements between Hearst Forest Management Inc. and the Ministry of Natural Resources and Forestry Hearst District Office continues to interfere with the effective implementation of the Forest Management Plan.

Finding # 5:

The Ministry of Natural Resources and Forestry Northeast Regional Office and the Hearst District Office did not fully meet Silviculture Effectiveness Monitoring program direction on the Hearst Forest.

3.0 Introduction

This report presents the findings of an Independent Forest Audit of the Hearst Forest (Sustainable Forest Licence # 550053) conducted by Arbex Forest Resource Consultants Ltd. The audit utilized a risk-based approach based on the 2019 Independent Forest Audit Process and Protocol. The audit term was April 1, 2012 to March 31, 2019. The audit scope covers the implementation of Phase II of the 2007-2017 Forest Management Plan (FMP) (years 6,7,8,9,10), the development and implementation (years 1, 2) of the 2017-2019 Contingency Plan (CP) and the development of the 2019-2029 Forest Management Plan.

The Forest is managed by Hearst Forest Management Inc. (HFMI) under Sustainable Forest License # 550053. HFMI operates under the terms of a partnership agreement between Lecours Lumber Co. Ltd., Columbia Forest Products and Tembec Industries Inc. (now Rayonier Advanced Materials Canada G.P.). The Forest is situated within the MNRF Hearst District in the Northeastern Region.

The previous IFA (2012) was conducted by ArborVitae Environmental Services Ltd. The audit resulted in twenty-one recommendations/findings. Seventeen recommendations were directed to the SFL holder and the MNRF District Office and four were directed to the MNRF Regional Office. The IFA concluded the Hearst Forest (HF) was sustainably managed but found that eight of the recommendations in the 2007 IFA had not been addressed or had only been marginally addressed. We concluded that recommendations from the 2012 IFA, with the exception of recommendations on slash management and effective tending treatments had been addressed.

3.1 Audit Process

The Crown Forest Sustainability Act (CFSA) requires that all Sustainable Forest Licences (SFLs) and Crown Management Units (CMUs) be audited every five to seven years by an Independent Auditor. The 2019 Independent Forest Audit Process and Protocol (IFAPP) provides guidance in meeting the requirements of Ontario Regulation 160/04 made under the CFSA and further required in MNRF's Environmental Assessment Requirements for Forest Management on Crown Lands in Ontario (MNR-75). The scope of the audit is determined by the MNRF in specifying mandatory audit criteria (Appendix A of the IFAPP). The audit scope, finalized by the auditors in conducting a management unit risk assessment, identified optional audit criteria from Appendix A to be included in the audit.

The procedures and criteria for the delivery of the IFA are specified in the 2019 IFAPP. The audit assessed licence holder and MNRF compliance with the Forest Management Planning Manual (FMPM) and the CFSA in conducting forest management planning, operations, monitoring and reporting activities. The audit also assessed the effectiveness of forest management activities in meeting the objectives set out in the Forest Management Plan (FMP). The audit further reviewed whether actual results in

the field were comparable with planned results and determined if the results were accurately reported. The results of each audit procedure are not reported on separately, but collectively provide the basis for reporting the outcome of the audit. The audit provides the opportunity to improve Crown forest management in Ontario through adaptive management. Findings of *"non-conformance*" are reported. A "*Best Practice*" is reported when the audit team finds the forest manager has implemented a highly effective and novel approach to forest management or when established forest management practices achieve remarkable success.

Arbex Forest Resource Consultants Ltd. conducted the IFA in September 2019, utilizing a three-person team. Profiles of the audit team members, their qualifications and responsibilities are provided in Appendix 6. Details on the audit processes implemented are provided in Appendix 4.

3.2 Management Unit Description

The HF encompasses a total Crown land area of 1,154,303 hectares with 1,113,768 ha classified as forested land. The Forest is approximately centered around the town of Hearst; extending east to the towns of Mattice and Opasatika, west to the Pagwa River, south to the northern end of the Chapleau Crown Game Preserve and north to the boundary of the Area of the Undertaking (Figure 1). There is approximately 250,000 ha of private land within the management unit boundaries. The Constance Lake First Nation (CLFN)) is located within the Forest, and the Moose Cree First Nation (FN), Missanabie Cree FN, Brunswick House FN and the Hornepayne Aboriginal Community are adjacent to it.

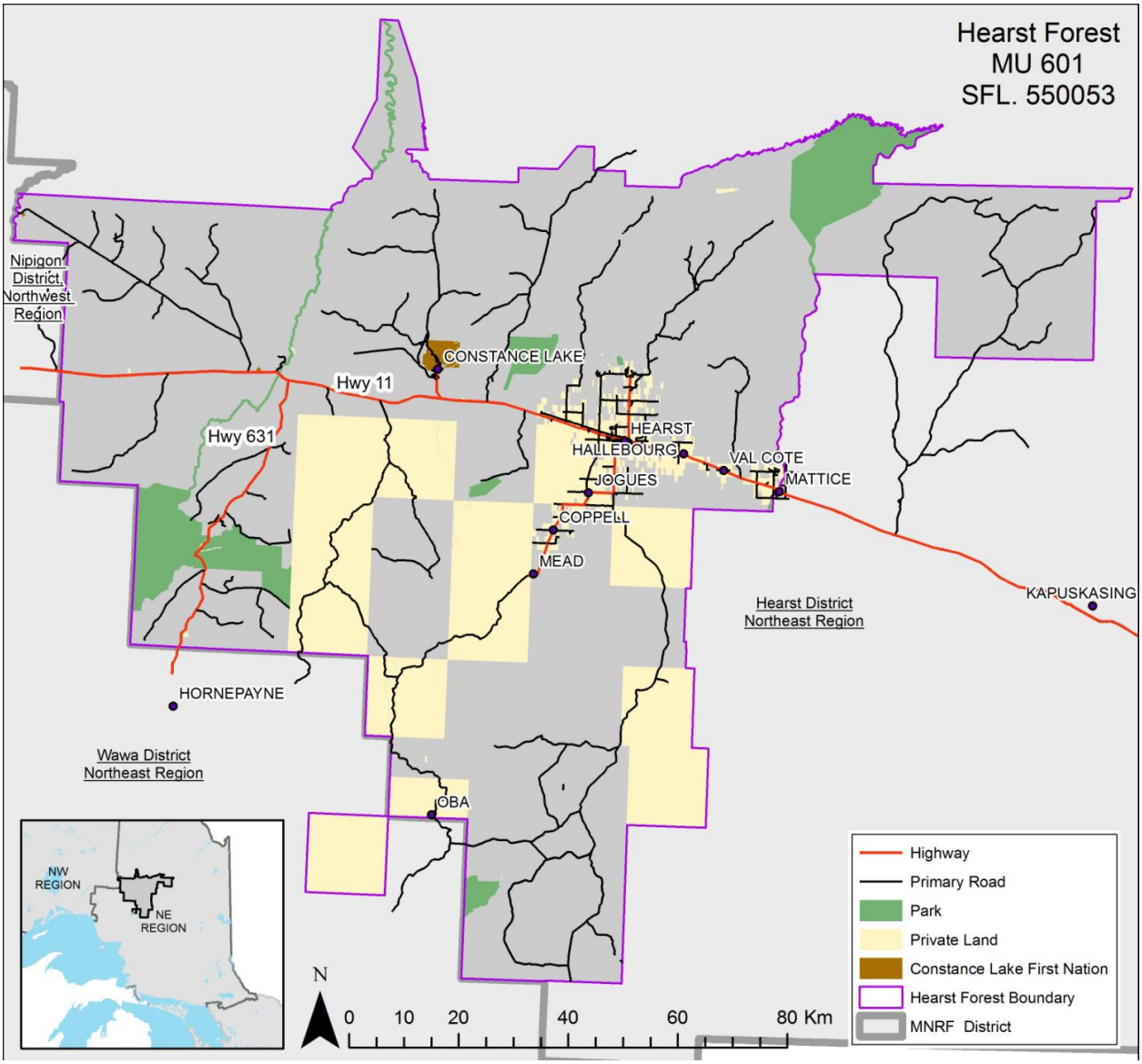


Figure 1: Location of the Hearst Forest

The Forest supports a diversity of wildlife species common to the Boreal Forest Region. Eighteen Species at Risk (SAR) were considered in the development of the Contingency Plan (CP) and Forest Management Plan (FMP). A portion of the HF is identified in the Continuous Distribution of the Pagwachuan Woodland Caribou Range and required the development of a Dynamic Caribou Habitat Schedule (DCHS).

The 2017 Contingency Plan and the 2019 FMP address woodland caribou habitat requirements in accordance with the Boreal Landscape Guide (BLG). The application of the Dynamic Caribou Habitat Schedule (DCHS) and caribou conservation is the main determinant for forest operations. The broad objective of the DCHS is to maintain a

continuous supply of suitable, year-round habitat distributed both geographically and temporally across the landscape.

Table 2: Area of Crown Managed Land by Land Type (Ha)

Managed Crown Land Type[1]	Area (Ha)
Non-Forested	40,535
Non-Productive Forest (including rock)	66,149
Protection Forest[2]	77,104
Production Forest[3]	
Forest Stands	776,546
Recent Disturbance	106,344
Below Regeneration Standards[4]	87,625
Total Productive Forest	1,047,619
Total Forested:	1,113,768
Total Crown Managed:	1,154,303

Source: FMP-1 2019 FMP

The HF is comprised of two identifiable regions. The north and central portions are in the Clay Belt which is characterized by expanses of poorly drained organic soils, mixed with areas of clay dominated soils. The remaining portion is characterized by well-drained soils that include clay, loam, and sand.

The forest types are typical of the Boreal Forest Region and vary throughout the Forest with the clay belt supporting predominately black spruce with tamarack and cedar and mixedwood uplands with conifer and hardwoods. Black spruce is the dominant tree species. Jack pine concentrations are found in four dispersed regions within the Forest. Table 3 presents the area occupied by each forest unit.

[1] Excludes lands classified as “Other’.
[2] Protection forest land is land on which forest management activities cannot normally be practiced without incurring deleterious environmental effects because of obvious physical limitations such as steep slopes and shallow soils over bedrock.
[3] Production forest is land at various stages of growth, with no obvious physical limitations on the ability to practice forest management.
[4] Below Regeneration Standards refers to the area where regeneration treatments have been applied but the new forest stands have yet to meet free-to-grow standards

Table 3: Representation of Forest Units

Forest Unit	Description	Area (Hectares)	% of Crown Managed Production Forest
Bw1	White Birch	7,152	1
LC1	Lowland Conifer	136,478	13
LH1	Lowland Hardwood	10,918	1
MW1	Mixedwood (Contains Jack Pine)	24,309	2
MW2C	Mixedwood Conifer	48,338	5
MW2H	Mixedwood Hardwood	56,233	5
PJ1	Jack Pine (Pure; Coarse Soils)	17,838	2
PJ2	Jack Pine (Less Pure; Loams & Heavier Soils)	18,648	2
PO1	Poplar	81,673	8
SB1	Black Spruce (Low - Site Class 2 or better)	235,264	23
SB3	Black Spruce (Low – Site Class 3)	116,509	11
SF	Spruce Fir	87,565	8
SP1	Spruce Pine	192,268	19

HFMI supports the harvesting activities of Columbia Forest Products (Hearst), Lecours Lumber Co. Ltd. (Calstock), Amik-Nuna Logging (Calstock), Marcel Lacroix (Hearst) and Rayonier Advanced Materials (Hearst). Georgia Pacific Forest Products occasionally purchases poplar. Table 4 presents the annual wood supply allocation from the HF.

Table 4: Annual Wood Supply Allocation

Company (Location)	Wood Supply Mechanism	Volume (m3)	Product	Species
Lecours Lumber Co. Ltd. (Calstock)	SFL Shareholder	311,417	Sawlogs	SPF
Rayonier Advanced Materials (Hearst)	SFL Shareholder	256,691	Sawlogs	SPF
Constance Lake FN (Calstock)	Appendix F SFL Condition	13,030	Sawlogs	SPF
Marcel Lacroix (Hearst)	Appendix F SFL Condition	6,515	Sawlogs	SPF
Cyprien Lachance (Val Cote)	Supply Agreement	630	Sawlogs	Birch, Cedar, Larch
Columbia Forest Products – Levesque Division (Hearst)	Supply Agreement	22,500	Veneer	Aspen

One Local Citizens Committee (LCC) is associated with the Forest (Hearst Local Citizens Committee).

The HF is actively used by the local and regional population for a wide range of recreational pursuits (e.g. hunting, fishing, cottaging, snowmobiling etc.). There are 71 traplines and seven remote tourism lakes.

4.0 Audit Findings

4.1 Commitment

The Forest is certified under the Forest Stewardship Council (FSC). Our audit results lead us to question if some FSC criterion were in fact met during the audit term. Both the MNRF and HFMI do have vision and mission statements that provide long-term guidance for their organizations. The MNRF Statement of Environmental Values includes providing leadership and oversight in the management of Ontario's forests, and positions itself as "*Champions for Ontario's forests, forest products sector and forest dependent communities.* The HFMI mission includes the requirement that it will …" *assume the stewardship of the Hearst Forest in a responsible manner".*

The IFAPP requires both organizations to reflect these commitments in the day-to-day operations of the organization. They are expected to work cooperatively, with a shared responsibility to plan and implement forestry in adherence to their respective missions. That includes a partnership that works collaboratively and positively to sustain the Forest and produce economic benefits to local communities. Our interviews with forest management staff at both organizations indicated that the working relationship between the organizations was at times strained and as a result, communications and collaborate work in the delivery of the forest management program requires improvement (See Findings # 1 and # 4).

4.2 Public Consultation and First Nations and Métis Community Involvement and Consultation

First Nations

There are four First Nations (FNs) associated with the Hearst Forest. These include the Constance Lake FN located within the Forest, and the Moose Cree, Missanabie Cree and Brunswick House FNs located adjacent to it. The Hornepayne Aboriginal community also has some traditional use areas within the Forest boundary.

For the development of the 2019-2029 FMP the MNRF met all FMPM requirements for notices and invitations to the involved communities to participate in the process. Offers were extended to set up information sessions and community meetings at each stage of the FMP planning process.

The 2019 FMP list of Planning team members includes seven members from Constance Lake FN, four from Moose Cree FN and two from Brunswick House FN. We were informed by the MNRF that the actual FN participation varied over the term of the plan development. Aboriginal Background information and updated values information was available for the planning process.

Our interviews and document review indicated that HFMI fully met its SFL contractual obligations associated with the involvement of FNs in forest management benefits. Some examples include;

- The Lecours Lumber sawmill is the main employer on Constance Lake FN.

- Amik-Nuna Logging is a logging company that operates on behalf of Constance Lake FN with full and part-time employees. HFMI shareholders have also paid a premium on scaled volumes harvested by Amik-Nuna. These funds are intended for capacity building.

- Constance Lake FN holds a 13,030 m^3 license on the Hearst Forest as part of a Shareholder Agreement. The FN joined the HFMI Board in 2009.

- HFMI requires all harvesting operators to notify and offer to meet with impacted indigenous trappers to review operations.

- Work is underway to include Constance Lake FN in the provincial natural resource revenue sharing initiative.

The 2012 IFA recommended that HFMI initiate discussions with the Constance Lake FN and explore opportunities for trappers to review harvest operations planned for their trapline areas. HFMI now requires all its contractors to notify and offer to meet with trappers who may be impacted by operations. We note HFMI has made numerous accommodations/mitigation measures to address FN concerns including but not limited to involvement in operational planning, additional buffers, reserves and corridors and deferral of herbicide applications. Our assessment is that the intent of the 2012 recommendation has been fully met.

The 2012 IFA also recommended that HFMI and MNRF seek funding to support the hiring of a Constance Lake Community Liaison Officer. HFMI correctly pointed out that it is not its responsibility to advocate for a staff position with Constance Lake FN or the MNRF. We were informed by the MNRF that there has been funding provided by Ontario's "New Relationship Funding" and Constance Lake has been receiving support. Our assessment is that the intent of the recommendation has been met.

Local Citizens Advisory Committee

There is one Local Citizens Committee (LCC) associated with the Forest (Hearst Local Citizens Committee (HLCC)). This is an impressive Committee with a long history (established in 1992). Over its 27-year history the HLCC has remained active and engaged with the management of the Forest. Members are appointed by the MNRF District Manager.

During the audit period, the HLCC membership included a representative range of community interests. Meetings are held approximately eight times a year and our sample of meeting minutes indicated there was always a quorum in attendance. While the committee is primarily focused on forestry (e.g. AWS, AR, amendments, FMP planning) other agenda topics such as fisheries and wildlife are often part of the agenda.

Interviews with members indicate there is a good working relationship with both the MNRF and HFMI. They were pleased with the responses by both the MNRF and HFMI to their questions and ongoing efforts to explain issues and provide relevant information to the Committee. The Committees Terms of Reference was renewed in 2018.

The HLCC was fully involved in the development of the Contingency Plan and the 2019 FMP. The HLCC Report (Supplementary Documentation 6.1.j) concluded:

"On July 18, 2018, the Hearst LCC gave its unanimous approval in principle to the proposed Hearst Forest Management Plan 2019-2029…"

The committee also indicated it, **"…***has been effective in voicing its opinion on the development of the HFMP, and issues that face the Hearst Forest"* and *"Its representative on the Planning Team has been an effective and knowledgeable participant in the forest management planning process".*

The 2012 IFA recommended that the LCC report included in the FMP be enhanced to meet all FMPM requirements. We concluded that the 2019 FMP LCC report met all FMPM requirements.

Our interviews with HLCC representatives revealed several issues where the membership voiced their opposition to MNRF planning direction. These included opposition to;

- General road decommissioning. While supporting targeted decommissioning related to specific values (e.g. remote tourism) they were opposed to widespread closures related to caribou,

- The application of the caribou policy on the Hearst Forest. They generally did not agree that the Forest is suitable caribou habitat and were aware of MNRF surveys (i.e. caribou tagging) that also showed limited use of the Forest by caribou.

The 2012 IFA provided a recommendation to corporate MNRF that it provide additional information and explanation to the public and aboriginal communities related to caribou planning and plan implementation. We determined that the MNRF met with the HLCC and provided information on caribou research and radio tracking. The development of the 2017 Contingency Plan and 2019 FMP included updated information on caribou range management and there was ongoing dialogue (i.e. HLCC, FNs and public) through planning team discussions and public information sessions. Our assessment is that the intent of the 2012 recommendation has been met.

However, based on information obtained from the MNRF (e.g. radio tracking, etc.) and input from the community, the LCC concluded that the caribou policy needed to be adjusted with respect to its application on the Hearst Forest. As a result, the HLCC was a participant in a combined effort by Municipal officials, HFMI, a FN and individual citizens directed at senior MNRF officials and elected politicians, to review the application of the caribou policy based on MNRF data, and a concern that it would have a long term negative impact on the viability of HFMI and employment at local wood mills. That effort failed. As a result of that action we did detect concern on the part of the MNRF that the Committee had overstepped its bounds and needed increased oversight and control. The audit team does not think the LCC overstepped its bounds. The LCC is the conduit for the general public and it is the member's role to bring concerns to the attention of the District Manager. If their concerns are ignored there is no restriction on the member's decision to raise their concerns elsewhere.

Our assessment is that this is an experienced and well-functioning LCC that fully meets the requirements and intent of the Forest Management Planning Manual (FMPM).

4.3 Forest Management Planning

The audit scope required the auditor to assess the planning process for the development of the 2017-2019 Contingency Plan and the 2019-2029 Forest Management Plan.

The production of a 2017-2027 FMP began in 2014 and was originally scheduled for implementation on April 1, 2017. The original dates of key planning milestones for the production of Phase 1 of that FMP are shown in Table 5.

Table 5: Original Plan Schedule for the Preparation of the 2017 FMP

FMP Stage	Description	Scheduled Completion
Stage 1	Invitation to Participate	October 15, 2014
Stage 2	Review of the Proposed Long-term Management Direction	August 15, 2015 – September 14, 2015
Stage 3	Information Centre: Review of Proposed Operations	December 15, 2015 – February 13, 2016
Stage 4	Information Centre – Review of Draft Forest Management Plan	June 27, 2016 – August 26, 2016
Stage 5	Inspection of MNRF – Approved Forest Management Plan	November 1, 2016 – December 1, 2016

Delays in the preparation of the 2017 FMP resulted in the requirement to produce a Contingency Plan (CP) and a requirement to develop a 2019-2029 FMP.

The CP provided time for HFMI to complete operational planning and public consultation for the development of a 2019-2029 FMP. Delays in the planning process were significant and included:

- a delay in the receipt of the Forest Resource Inventory (FRI).
- difficulties uploading FRI data to the MNRF Forest Information Portal (FiPortal).
- the requirements and direction of the Caribou Conservation Plan (CCP) and the Boreal Landscape Guide (BLG) were a beta test for multiple products and new policies which created challenges for planning.
- the application of the Woodstock Wood Supply Model and Stanley Spatial Optimizer (Remsoft) as the primary forest management planning model.
- differences in opinion and interpretation of model results, interpretation of technical standards, and required accuracy/precision of data products.
- problems with the Ontario Hydrologic Network (OHN) layer.

- re-submission of required alterations that had previously been identified as unnecessary or addressed in previous reviews.
- failure to address, or adequately address, required alterations.

The adoption of a spatial optimizer (Woodstock) as the primary planning model added an additional layer of complexity to the process as planning team members and regional staff lacked prior experience with the model. For example, model assembly and working out the difficulties (e.g. with complicated succession rules), took from August 2015 to February 2016. We were informed that an MNRF-sanctioned Woodstock base model for use on Ontario management units would have been useful but wasn't available for the production of the plan.

Areas for operations in the CP were selected on the basis of previous consultations with the public during the development of the 2007 FMP (harvest or contingency areas) and consistency with the planned DCHS. There was an assumption that the operational areas would be non-contentious since the CP planning process does not provide an opportunity for an Individual Environmental Assessment (IEA).

Operations in the CP were consistent with the Long-term Management Direction (LTMD) which was approved in 2017. The Woodstock model was utilized as the decision support tool during the development of the LTMD and was cited as a significant factor contributing to the significant delays in the production of the management plan as "*both the MNRF and SFL staff had to learn the intricacies of the new model*."[5]

Forest Management Planning Manual (FMPM) requirements for the preparation of the CP were met and the CP was endorsed by the MNRF Regional Director.

The LTMD for the 2019 FMP was endorsed in 2016 and was based on modeling work for the development of the 2017 FMP.

The application of the Dynamic Caribou Habitat Schedule (DCHS) and caribou conservation is the main determinant for forest operations. The broad objective of the DCHS is to maintain a continuous supply of suitable, year-round habitat distributed both geographically and temporally across the landscape. Planning for a DCHS on the Forest was complex given the requirements and direction of the Caribou Conservation Plan (CCP) and the Boreal Landscape Guide (BLG), the current forest condition, the high levels of utilization (for some species and products), projected wood supply reductions[6] and requirements to address other stakeholder interests.

The southern portion of the Pagwachuan caribou range is situated in the HF. The DCHS is envisioned to provide sustainable year-round caribou habitat in very large interconnected tracts that are implemented through the forest management planning

[5] Contingency Plan

[6] The proposed LTMD scenario met the current industrial demand for both conifer (SPF) and aspen (Pt) for the initial planning periods (SPF = 588,000 m^3/year, Aspen 189,000 m^3/year.) These volumes decline in later periods to 526,000 m^3/year for SPF and to approximately 170,000's m^3/year for aspen.

process. The application of the DCHS, more than any other factor, determines whether the desired forest and benefits can be achieved over time. The other key component of the caribou strategy is the organization of harvest areas into large contiguous blocks.

In the central portion of the Forest a large area was designated as a “Z” block. This area is heavily fragmented with significant areas of uneven-aged mixedwoods and has a high road density. As a result of its low habitat capability (lack of conifer habitat) it was determined that harvest within the block can occur outside of the DCHS harvest schedule. HFMI lobbied the MNRF to extend the area designated as Z block lands as, in the opinion of the forest manager, forest conditions on a significant portion of the HF did not constitute capable caribou habitat and population surveys of woodland caribou did not show significant continual use within significant portions of the management unit. The MNRF declined the request on the basis that the CCP and BLG required that a DCHS be developed for the area designated as continuous distribution for caribou. As well, because the BLG is not a discretional guide, no exemptions were possible. The MNRF also indicated that the age class distribution of the HF would be the key driver of the long-term harvest levels regardless of the DCHS (average age of forested stands in the caribou zone is 90 years)[7]. We note that caribou planning became politicized with lobbying at the Ministerial level. There was disagreement on the application of the CCP and HFMI lobbied MNRF to extend the area designated as Z block lands. Subsequent lobbying by another party occurred at the draft and final plan approval stages, questioning the authority of the plan and plan approval process which further delayed plan implementation.

The production of the 2019 FMP was inefficient and costly. There were differences in opinion and interpretation of model results between HFMI and MNRF District and Regional staff. There was disagreement with the interpretation of technical standards and the required accuracy/precision of forest management data products and model outputs. Often the reviews of product submissions were protracted due to requirements for resubmissions. As a result of the disagreements, disputes and planning delays the working relationship between the SFL holder and the MNRF became increasingly strained. There was staff turnover within both organizations that undoubtedly contributed to the problem. However, the problems with the planning persisted for a number of years with an associated deterioration of relations in other areas of the FMP implementation.

A Steering Committee (SC) comprised of senior managers from MNRF and HFMI was established for the 2017 FMP planning process. Included in the Committee mandate were the following directions;

- *provide guidance and direction on unresolved planning team issues to ensure closure is achieved and that once decisions are made; they are not revisited without due cause;*
- *Monitor the production of the plan to ensure milestones are being met and the*

[7] MNRF correspondence MNR114DC-2015-114.

plan will be ready for approval on time.

There is evidence that the SC was intimately involved in the planning team and at the task team level to provide some level of direction and support to the planning process. However, the problems and issues related to the plan development persisted over a number of years. Our interviews indicated that MNRF senior management (i.e. District Manager, Regional Director, Minister's Office) and the HFMI General Manager and Board members were aware of the prolonged planning exercise and the increasingly dysfunctional relationship between the organizations. Senior managers adopted various strategies including attendance at planning team meetings to keep relationships balanced and the engagement of a third party (Rayonier Advanced Materials Canada GP) to support HFMI and the planning team. While these efforts enabled the eventual production of the FMP, the SC and senior management at MNRF and HFMI were not able to effectively resolve resource issues and disagreements among planning team members and were not able to keep the planning process functioning effectively.

It is the opinion of the audit team that, the Hearst FMP development process contains important messages that Corporate MNRF and management at HFMI need to understand. These include the application of the Woodstock model in the Northeast Region (NER), issue resolution, staff oversight and direction and collaborative approaches to decision-making and problem-solving.

We provide Finding # 1 to address discusses the various issues associated with the FMP development.

During the preparation of an FMP, opportunities are provided for person(s) to make a request for an Individual Environmental Assessment (IEA) for specific proposed forest management activities. The FMPM contains information on the circumstances and procedures for requesting an IEA while the process for administering the IEA is set out in Condition 26 of Declaration Order MNR-75. Just prior to the 2019 FMP approval an IEA request was received. The request was denied by the Ministry of the Environment, Conservation and Parks (MECP). Condition 26 outlines the communications protocol which must be followed including notifications to the Plan Author upon receipt of the request, notice of any changes to specific planned operations, documentation of reasons for the MECP decision etc. We were informed that the Plan Author did not receive the required notifications from MECP and was informed of the decision by the MNRF District Manager. We do not provide a finding as the responsibility for the management of the IEA process resides with the MECP and the direction of findings to another Provincial Government Ministry is out of scope.

In spite of the numerous difficulties in the development of the forest management plan(s), we concluded that forest management was eventually planned in accordance with the requirements of the relevant Forest Management Planning Manual and that Forest Management Plan targets are consistent with the achievement of plan objectives and forest sustainability

4.4 Plan Assessment and Implementation

Harvest

Areas harvested under the 2007 FMP, the CP and the 2019 FMP were cut under the clear-cut system.

For lowland areas, “Careful Logging to protect Advance Regeneration” (CLAAG) to facilitate seeding is the predominant silviculture system. Residual tree requirements are planned in accordance with the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (Stand and Site Guide (SSG)). Guideline requirements for the provision of habitat for featured species and SARs were applied during operational planning based on site conditions and known habitat features. Our site inspections of lowland sites found that the silviculture treatments (e.g. CLAAG, group seed tree) had been properly implemented. Most of the inspected sites exhibited adequate stocking of conifer regeneration.

The clear cut silviculture system is utilized exclusively on upland sites.

Historically, the demand for hardwood veneer quality logs has remained high while the demand for the non-veneer portion of the tree has been weak. To address the utilization and renewal challenges associated with hardwood dominated stands, HFMI followed the direction of the District’s Hardwood Utilization Strategy for the Hearst Forest. This strategy meets the direction of the Northeast Region Operations Guide for Marketability Issues while recognizing conditions specific to the HF. The strategy allows harvest operations to deviate from normal utilization practices in some stands and to allow merchandizing for one log product type while leaving the rest of the tree behind. HFMI also makes efforts to assist full utilization by reducing administrative costs and road use fees for moving low grade hardwood and biomass. During the field audit we observed frequent instances where portions of poplar had been merchandized for veneer and the non-merchantable portions of the tree had been piled at roadside.

To facilitate poplar renewal, partial harvesting strategies that remove up to 70% of the overstory canopy were adopted. This strategy provided sufficient warming of the soil to stimulate suckering while ensuring enough shade on the forest floor to limit the reproduction of shrubs and undesirable hardwoods (i.e. alder, hazel). Poplar renewal sites inspected during the field audit exhibited high densities of poplar saplings.
During the first five years of the 2007-2017 FMP, only 73% of the planned harvest areas were harvested due to the economic downturn in the forest products markets and the periodic idling of Hearst area mills. The unharvested areas were carried into Phase II of the plan and into the two-year contingency plan, resulting in 92% of the planned area being harvested. During the term of the audit, 77% of the planned harvest volume for Spruce-Pine-Fir (SPF), and 16% of Poplar had been utilized. Table 6 presents the actual vs. planned harvest area for 2012-2019. Table 7 presents a summary of the planned vs. actual volume utilization between 2012 and 2019.

Table 6: Actual vs. Planned Harvest Area by Forest Unit (2012-2019)

Forest Unit	Planned 7 Year Harvest (Ha)	Actual 7 Year Harvest (Ha)	Actual vs Planned %
BW1	157	151	96
LC1	3,254	1,365	42
LH1	106	79	74
MW1	1,905	1,968	103
MW2	7,954	7,159	90
MW2H	905	630	69
PJ1	147	141	96
PJ2	548	571	104
PO1	2,542	3,115	123
PO3	698	689	99
SB1	15,927	13,449	84
SB3	7,797	3,830	49
SBOG	0	230	
SF1	2,638	2,132	81
SP1	8,523	11,741	138
Sub Total			
Non-Forested	**0**	1,497	
Total	**53,101**	**48,747**	**92**

Source: 2012-2018 Annual Reports/Estimate 2018/19

Table 7: Planned vs. Actual Harvest Volumes (2012-2019)

Species	Planned Volume (m^3)	Actual Volume (m^3)	Actual vs Planned %
Pw/Pr	**0**	0	**100**
Pj	251,213	377,200	150
Sp/Sw	4,255,463	3,441,447	81
B	230,802	42,081	18
Ce	94,934	248	0.3
La	152,836	532	0.3
Conifer SubTotal	4,985,248	3,861,618	**77**
Bw	152,874	25	0
Po	1,401,720	224,204	16
OH	500,824	2,829	1
Hardwood Sub Total	2,055,418	227,058	**11**
Bioenergy	0	8,220	
Fuelwood	0	4,345	
Total	**7,040,666**	**4,101,241**	**58**

Source: 2012-2018 Annual Reports/2018/19 iTREES

Planned volume targets were not met mainly because the planned volume (based on the forest inventory) was 132 m^3/ha and the actual volume realized was 84 m^3/ha.

We note that fuelwood collection areas were made available to the communities of Mattice, Hearst, and Jogues and that fuelwood (logs) were delivered to the Constance Lake FN by Lecours, Tembec/RYAM and Amik.

No salvage harvest operations were conducted during the audit term.

The field audit inspected 14% of the area harvested during the audit term. Our site inspections found that the harvest blocks were in accordance with the FMP and the applicable Annual Work Schedule (AWS). Residual tree retention within blocks was generally in accordance with the applicable guidelines (e.g. SSG). The audit team did not observe any instances of significant environmental damage related to harvesting on the inspected sites.

Slash Management

The 2012 IFA provided a recommendation that HFMI take measures to reduce the loss of productive forest area (e.g. roads, slash) and that the Planning Team for the 2017 FMP review the loss factors used in modeling to ensure that they accurately reflect conditions on the Forest. Wood supply modelling forecast the productive forest area lost to roads and slash as between 4-6%.

The 2019 FMP states that "*Slash management on the Hearst Forest is focused on productive upland sites. Slash is managed through corridor site preparation by aligning the larger piles to increase productive area for artificial regeneration. The spacing is typically 7 feet apart. This is applied wherever mechanical site preparation is carried out. Further slash treatment measures, such as slash burning or piling, may be introduced at the AWS stage or when operational factors such as permitting, and fire indices are addressed*."

The FMP also states that "*area converted to non-forest or non-productive forest (e.g. slash and debris, operational roads, landing and flooded areas), should be quantified and monitored for recovery back into the productive land base. The results should be used to further refine forecasts of area converted to non-forest and non-productive forest.*"

Our site inspections revealed that slash management could be improved. We note that HFMI did not implement other slash management treatment measures during the audit term (i.e. beehive piling, burning). The declining trend in the use of mechanical site preparation will also have implications for slash management program. We are also concerned that efforts to quantify and monitor the slash management program to refine forecasts on the loss of productive land have not been undertaken.

We conclude that the 2012 IFA Recommendation had not been satisfactorily addressed. We provide Finding # 2 to address the identified shortcomings of the slash management program.

Area of Concern Management (AOC)

AOC prescriptions to protect identified values were completed and implemented as required in the 2017 FMP, the 2017-2019 Contingency Plan and the 2019-2029 FMP. Our interviews indicated there was appropriate information to meet planning requirements and MNRF staff indicated there was adequate funding to collect values information.

The 2012 IFA provided a recommendation that the MNRF ensure timely and adequate amounts of values information be collected in conjunction with plan development and that MNRF maintain records of its efforts. We determined that the MNRF prioritized values collection on an annual basis. There has been on-going cooperation with respect to values collection and documentation between the HFMI and the MNRF. Information is tracked by the MNRF biologist. Our assessment is that the recommendation was met.

AOC prescriptions are included in the FMPs and AWSs and are reviewed for approval by the MNRF. AOC documentation includes a section for an analysis of alternatives to protect the value should that be required. Public input with respect to values was documented, verified and incorporated on values maps (as appropriate). We randomly sampled and assessed 20 AOC prescriptions against the applicable guidelines and confirmed that they were in accordance with MNRF direction. During our field inspections we assessed AOCs visually (e.g. residual trees) and with aerial photography (e.g. riparian buffers) and confirmed that AOCs were appropriately implemented.

The 2012 IFA provided a recommendation to incorporate protection for barn swallows, whip-poor-wills and chimney swifts into the FMP. There is no evidence that chimney swift's or whip-poor-wills are present on the Forest. With respect to barn swallows the District requires that any bridge or large culvert scheduled for removal is inspected to ensure that there are no barn swallow nests present. If nests are present, and if it is within the breeding period, no removal can be carried out until the nests are vacated. The 2017 FMP contained protection requirements for barn swallows. Our assessment is that the intent of the 2012 recommendation was met.

We reviewed documentation on the training for contractors with respect to the protection of values. Contractors are provided with detailed information on wildlife guidelines, including a field booklet with information/instructions related to AOC protection and species at risk.

Our assessment is that values identification and the development and implementation of AOC prescriptions met all FMPM requirements.

Site Preparation (SIP)

SIP operations were by disk trencher on upland areas and by bulldozers equipped with a straight or angle blade (for corridors in lowland areas). No prescribed burns were planned or implemented during the audit term. We inspected 30% of the area treated by mechanical or chemical site preparation.

Although no treatments were scheduled during the audit term, chemical site preparation was implemented on 1,115 ha (Table 8). The treatments appeared to be effective in reducing initial site competition. Areas treated by mechanical site preparation exhibited good mineral soil exposure and/or a reduced duff layer. There was no evidence of significant environmental damage arising from the operations.

During the audit term, SIP treatments achieved 90% of the planned target. While the 90% achievement of the planned target over the 7-year audit term is satisfactory, the audit team is concerned that the SFL holder is consciously decreasing the area mechanically site prepared each year to reduce costs. In 2018, only 60% of the annual planned area was site prepared. On less productive areas site preparation may not be necessary due to lower initial levels of competition. However, upland sites tend to be conducive to the growth of hardwoods and herbaceous species which aggressively compete with conifer crop trees for site nutrients and resources. Site preparation

treatments in combination with tending are typically required to ensure successful conifer renewal. Reducing the area treated by site preparation on competitive sites could have implications for conifer seedling survival, the level of conifer ingress and optimal growth of the conifer crop. The declining trend in the use of mechanical site preparation will also have implications for the slash management program as during the audit term there was a sole reliance on "*corridor site preparation to increase productive area for artificial regeneration".*

Although we question the strategy to reduce the area treated by mechanical SIP a finding is not provided as further monitoring will be necessary to determine if sufficient conifer stocking levels are achieved on sites where site preparation treatments were not implemented.

Table 8: Planned vs. Actual Site Preparation (2012-2019)

Site Preparation Treatments	Planned Ha	Actual Ha	Actual vs Planned %
Mechanical SIP	8,435	7,591	90
Chemical SIP	0	1,115	
SIP Total	8,435	8,706	103

Source: Year 10 AR

Renewal

Renewal activities achieved 83% of the planned targets (Table 9). The area renewed was 88% of the area harvested (43,068 ha renewed vs 48,747 ha harvested).

Natural renewal treatments were implemented on approximately 56% of the renewed area. Natural renewal is typically prescribed for hardwood dominated forest or conifer in lowland areas. In lowland areas, CLAAG was the predominant harvesting method on 19,345 ha and our inspections confirmed natural regeneration success on these sites. Group Seed Tree (GST) was used on 422 hectares and poplar natural regeneration occurred on 4,248 hectares. The Year 10 AR indicates that less lowland area is being treated by GST over successive management terms as stands transition to older age classes[8].

Our inspections of areas managed for natural renewal found that they were generally well-stocked to the desired tree species. In areas exhibiting lower stocking levels it is expected that natural ingress will augment stocking densities.

[8] As stands age and the tree canopy opens up due to tree mortality and/or disturbance events (i.e. windthrow) the GST treatment becomes less viable and CLAAG treatments are prescribed.

The traditional level of tree planting on the HF is 6.5 million trees per year (average density of 2,000 -2,200 seedlings per hectare). Artificial regeneration of black and white spruce was implemented on 44% of the renewed area. Overall artificial renewal treatments achieved 98% of plan target. Our inspection of sites managed for artificial renewal found that they were generally well-stocked to the desired crop species.

Sites with lower stocking densities are expected to achieve higher stocking levels with natural ingress. Competition on rich sites will require continual monitoring and tending treatments are frequently necessary to ensure that stocking levels are maintained or enhanced. We note that areas are being planted with genetically improved stock to enhance survival rates. On the sites we inspected this stock displayed significant annual growth.

Table 9: Planned vs. Actual Renewal Treatments (2012-2019)

Renewal Treatments	Planned (Ha)	Actual Achievement (Ha)	Actual vs Planned %
Natural Renewal	32,781	24,015	73
Artificial Renewal – Plant	19,390	19,053	98
Total Renewal	52,171	43,068	83

Renewal Support

Renewal support activities (e.g. planting stock production, seed collection etc.) were sufficient to meet the renewal program requirements.

Tending

Fine-textured soils (i.e. silt and clay soils) predominate on the Hearst Forest. These soils are conducive to the growth of hardwoods and herbaceous species which aggressively compete with conifer crop trees for site nutrients and resources. Tending treatments are required on these soils to promote the establishment and optimal growth of desired crop tree species. The control of vegetative competition is significant for the successful implementation of the CCP. Effective tending applications ensure that the investment in artificial conifer renewal is not lost and that suitable habitat conditions for caribou are created and/or maintained. The LTMD has a strategic emphasis on reducing the area of hardwood dominated forest units and increasing the area occupied by conifer dominated forest units.

Planned targets for aerial tending were not achieved (71% of planned) with 12,050 ha being treated with VisionMax or Forza. Tending operations did not occur during 2017.

HFMI made a request to use an exemption under the CFSA (Section 42.2)[9] to authorize forest operations in the absence of a forest management plan[10]. The request was denied by the Hearst District Manager as it was deemed that the delay of the spray program for a year would not have negative implications on the long-term sustainability of the HF. Included in the rationale was that other management units in the northeast region did not complete herbicide applications on an annual basis. We were informed that the impact of the delay in tending is being monitored.

The 2012 IFA included a recommendation that "*the Company shall continue to ensure that all planed sites are assessed for tending needs and shall place special emphasis on the assessment of sites that appear to have experienced herbicide efficacy problems and were also planted with smaller-sized tree seedlings. If necessary, these sites shall be treated promptly to ensure the appropriate silvicultural standards are met.*" During the field audit, we inspected 24% of the sites treated by aerial herbicide applications. The Audit team is concerned that timely and effective tending treatments continue to be inconsistently implemented with variable results (Finding #3). We note that HFMI elected to defer herbicide applications on 1,349 hectares in response to a concern by a local First Nation. The FN viewed the application of herbicide as a direct threat to their Indigenous Treaty Rights to hunt, gather and fish and threatened a legal action should herbicide be sprayed. On these deferred areas we are of the opinion that HFMI should implement alternative techniques and/or approaches to vegetation management which may be more compatible with Indigenous perspectives on the control of competing vegetation (e.g. manual tending, utilization of larger planting stock).

Protection

No protection programs other than monitoring functions were implemented for reported infestations of Forest Tent Caterpillar (2016, 2017) and Black Army Cutworm (2017, 2018).

Three forest fires occurred during the audit term (1,772 ha).

Access Management

Access planning met the requirements of the FMPM. During the audit term, $19.9 million was spent on road construction and maintenance of which $14.5 million was through the MNRF Roads Funding Allocation. Eighty-four kilometers (kms) of primary road and 162.2 kms of branch were constructed. In general, primary access roads were well-built and maintained.

We note that the proper sizing for water crossings was a challenge in the Waxatike

[9] The minister may in writing direct that subsection (1) does not apply to forest operations conducted by or on behalf of the Minister if, in the opinion of the Minister, the forest operations are necessary to provide for the sustainability of a Crown forest"

[10] Tending could not be carried out because the 2017-19 Contingency Plan had not been finalized and approved.

area. Although the sizing calculations that are the standard for the region have been consistently and correctly applied in this area, for some reason the opening sizes continue to be too restrictive to effectively allow the required flow of water. We were informed that crossing calculations will continue to be done and expanded upon until the proper formula has been reached and that HFMI is currently increasing size of culverts by 25% above calculation.

4.5 System Support

As indicated in Section 4.1 the Forest has FSC certification. However, the IFAPP requires evidence that "*appropriate awareness, education and training programs …are in place and operational."* As discussed in Section 4.3 and Section 4.6, during the protracted FMP development and ongoing disputes related to water crossings there were requests from involved staff for additional training to better understand new processes and/or to calibrate MNRF and HFMI understanding and interpretation of MNRF manuals and directions. That training never occurred. Both the MNRF and HFMI managers shared the responsibility to discuss, locate and implement the required training (See Findings # 1 and 4).

4.6 Monitoring

Compliance Monitoring

HFMI prepared compliance plans in accordance with the FMPM requirements and the Guidelines for Industry Compliance Planning. The 2012 IFA provided a recommendation that HFMI provide an Annual Compliance Plan in the AWS. This requirement was met.

MNRF Annual Compliance Plans identified priority areas, assigned targets, and included reporting requirements.

During the audit term the SFL holder and MNRF completed 567 Forest Operations Information Program (FOIP) inspections (the SFL holder completed 77% of the inspections and MNRF completed 23%). The majority of inspections focused on harvest (59%) and access (38%). There were four Not-In-Compliances (NICs) for a compliance rate of approximately 99%. HFMI identified twenty-one operational issues and MNRF identified thirteen. Our assessment is that the range and scope of compliance activities was appropriate. HFMI and MNRF have worked proactively and cooperatively to identify issues, develop corrective remedies and follow up with targeted training with individual contractors or at annual training sessions.

A sample of Forest Operations Information Program (FOIP) reports (30) indicated that reporting approvals and timelines were generally met. Company updates on movements to and from harvesting blocks was by email and/or telephone. While this process is informal, we were informed by MNRF staff that there were no serious issues with

respect to reporting timelines or suspended blocks. We note that HFMI has formalized its reporting with the use of spreadsheets.

Over the audit term the compliance program on the Forest met the requirements of the FMPM, Forest Compliance Handbook and FMP targets. We note that while some operations involving MNRF and HFMI were, and remain contentious, the Compliance staff from both organizations worked cooperatively and effectively and produced an excellent program.

Monitoring of Silvicultural Activities

Silviculture assessments and other monitoring functions are summarized in the FMPs. Monitoring activities included FOIPs, assessments of regeneration success and post-tending assessments. We reviewed evidence that monitoring programs were implemented.

Free to Grow Survey (FTG)

During the 2012-2017 term, 36,035 ha were surveyed and 97% of this area was declared as successfully regenerated. The remaining area was either not surveyed or declared not sufficiently regenerated. Our field sampling generally substantiated the reported stand descriptions and forest unit designations.

Assessment of Past Silviculture Performance

The Year 10 AR indicates historic high success rates with respect to the free to grow status of areas surveyed for regeneration success (Table 10).

Table 10: Area Surveyed and Declared FTG by Planning Term

Planning Term	Area Surveyed (Ha)	Area Declared FTG (Hectares)	Percent FTG
1997 - 2002	91,656	86,502	94
2002 - 2007	35,143	34,394	98
2007 - 2012	29,670	28,838	97
2012 - 2017	37,095	36,035	97
Total	193,564	185,769	96

Source: Year 10 AR

Regeneration is considered a *"silviculture success*" when all the standards contained in the SGR applied to that stand have been met and the projected forest unit is achieved. A *"regeneration success*" occurs when the regeneration meets all the standards of an SGR but the stand has regenerated to a forest unit other than the projected unit.

Table AR-13 of the Year 10 AR indicates that, in general, most forest units are being maintained (approximately a 73% silviculture success for conifer forest units). Silviculture Effectiveness Monitoring (SEM) surveys indicate that balsam fir and larch are impacting spruce renewal on lowland areas and that hardwoods and shrubs are the primary competitors for conifer on upland areas. Based on our field survey it was evident that the forest manager must be more diligent in monitoring early growth and survival and ensure that tending and other silviculture treatments (i.e. site preparation) which facilitate the growth of conifers are effectively implemented (Finding # 3).

Silviculture Effectiveness Monitoring

The Hearst District Office completed SEM during each year of the audit term. Monitoring was limited to the delivery of Core Task 1.

We note that the MNRF currently does not provide a format, or content guidelines, with respect to reporting results. In general, the reports we reviewed lacked critical analysis as to emerging trends and/or insight as to areas requiring further investigation. The shortcomings in reporting are concerning. Effective learning, continuous improvement and improved decision-making requires the documentation and sharing of outcomes in order that new knowledge can be transmitted to others.

The NER Strategy document identifies "*opportunities for an annual SEM information exchange meeting for both MNR and SFL staff to review results and lessons learned*" as a Best Management Practice. During the audit term the SFL holder and the MNRF staff indicated that discussions have taken place to discuss the respective SEM results and variances[11], but these were not held consistently throughout the term.

We are concerned that SEM monitoring is insufficient and is not being reported (Finding # 5). Based on our interviews, we also concluded that MNRF staff were unclear as to where within the MNRF the responsibility for the SEM direction resides.

Exceptions Monitoring

The monitoring of hardwood and mixedwood stands left for natural regeneration following harvest where the canopy closure has not been reduced below 30% is the only exception listed in the 2019 FMP. The Hardwood Utilization Strategy stipulates that certain pre-harvest stand conditions and market conditions are a pre-requisite for partial harvesting to occur. Monitoring of stands was undertaken to ascertain whether exceptions monitoring is required. During the audit term, two harvest areas were identified as potential sites for exceptions monitoring but monitoring was not required.

[11] Sampling discrepancies can be expected and attributed to differences in the sampling methodologies, staff experience, etc.

Forest Renewal Trust Specified Procedures Report

The Forest Renewal Trust (FRT) provides dedicated funding (reimbursement of silviculture expenses) to renew the forest according to the standards specified in the FMP. We inspected 28% of the area invoiced in the "*Forest Renewal Trust Specified Procedures Report"* (SPR) and confirmed that FRT payments were for eligible silviculture work.

Monitoring of Roads and Water Crossings

Roads and water crossings are monitored through industry and MNRF FOIP inspections. Our review of FOIPs related to Access indicated 216 road and water crossing inspections were conducted with no reported issues.

Both HFMI inspections and MNRF compliance planning and monitoring had a focus on water crossings. MNRF reviewed water crossing installations, repairs and removals in accordance with the *Ministry of Natural Resources and Forestry/Fisheries and Oceans Canada Protocol for the Review and Approval of Forestry Water Crossings.* We determined there were a number of issues between HFMI and the District MNRF associated with water crossing approvals. We discuss the issues in Finding # 4.

Decommissioning of operational roads is undertaken to reduce the loss of productive land and prevent public access into protected areas. One road was decommissioned in 2013.

Sixty-seven water crossings were constructed[12]. We inspected sixteen water crossings and found that culvert and bridge installations were well-constructed. The 2012 IFA provided a recommendation that HFMI conduct regular bridge inspections and undertake repairs as required. We were provided with inspection information related to bridges and our field inspections never encountered any issues. HFMI has a Roads Coordinator position and regular road, culvert and bridge inspections are carried out. Issues are reported to HFMI management and repairs are scheduled. Engineers annually inspect and report on the structural conditions of bridges. Our assessment is that the 2012 recommendation had been appropriately addressed.

We note that road building in the Clay belt is difficult and expensive. In response, HFMI has invested in LiDAR technology. This technology provides for the identification of small changes in elevation (possible gravel sources) and very accurate drainage information (identification of road location and water crossings). All roads are actively maintained while forest operations are ongoing. When operations are completed the level of maintenance is reduced and roads are monitored to ensure they are not causing safety or environmental concerns. Roads that impact Areas of Concern (such as waterways) are listed in FMP-19 with proposed prescriptions. We inspected spreadsheets that documented the harvest block, start-up dates, harvest type, etc. Our

[12] Does not include ice bridges.

discussions with MNRF indicated that while there were occasionally timing issues associated with notifications from the HFMI they were not ongoing or serious.

We were provided with evidence of HFMI contractor training programs (agendas, attendance lists, etc.) that covered road, water crossing and aggregate pit requirements.

Aggregate Pits

Forestry Aggregate Pits (FAP) documentation is covered in the FMP Supplementary Documentation and AWSs. Pit location and history is documented by HFMI.

During the field audit we inspected seven gravel pits (four operational and three rehabilitated). With one exception, the pits met the required operational standards.

Annual Reports (ARs)

ARs were available for each year in the audit scope except for the 2018-2019 report which is not required until November 15, 2019. As per IFAPP requirements a Year 10 AR was prepared. The contents of all ARs met the requirements of the relevant FMPM.

4.7 Achievement of Management Objectives & Forest Sustainability

As required by the IFAPP the Year 10 AR must include an assessment of FMP objectives and determination as to whether the implementation of the FMP has provided for the sustainability of the Crown forest. The Report Author concludes that "*objective achievement is being met and forest activities are not posing any threats to the sustainability of the forest. Overall the sustainability of the Hearst Forest is not showing any signs of being threatened*."

Despite the difficult, costly and time-consuming FMP development process, forest management was planned in accordance with the requirements of the relevant FMPM and FMP targets are consistent with the achievement of plan objectives and forest sustainability. These objectives and targets are being achieved or progress is being made towards their achievement. We concluded that the FMP(s) were developed and implemented in accordance with legislation and policies that were in effect during the audit term.

The achievement of long-term forest sustainability as assessed by the IFAPP, is not at risk. Our conclusion is premised on the following:

- Forest management was planned and implemented in accordance with the Crown Forest Sustainability Act (CFSA) and FMP targets are consistent with the achievement of plan objectives and forest sustainability.

- FMP objectives and targets are being achieved or progress is being made towards their achievement

- Silvicultural Ground Rules (SGRs) and Forest Operations Prescriptions (FOPs) were appropriate for the forest cover types and site conditions observed in the field.

- The area renewed was aligned with the area harvested.

- FOIP records indicate that an effective compliance program (99% in compliance rate) was implemented.

- No instances of significant environmental damage attributable to forest management activities were observed during our site inspections.

- With two exceptions, recommendations from the previous IFA were satisfactorily actioned.

4.8 Contractual Obligations

We concluded that HFMI is substantially in compliance with the terms and conditions of its SFL (See Appendix 3).

The IFAPP requires auditors to assess the effectiveness of the actions developed to address the recommendations of the previous audit. The audit team confirmed that the recommendations have been appropriately addressed with two exceptions related to slash management and tending.

4.9 Concluding Statement

Delays in the planning process for the development of the FMP(s) were significant and can be attributed to technical challenges associated with the implementation of the Woodstock model, the implementation of new MNRF guidelines and directions (including the CCP) and, discord amongst planning team members. The FMP Steering Committee and senior managers were largely unable to resolve issues and dysfunction amongst the planning team members (Finding # 1). Despite the challenges, the 2019 FMP was produced on time for operations. FMP objectives and targets are consistent with the achievement of plan objectives and forest sustainability.

The audit identified a requirement to ensure that an effective vegetation management program is implemented and that areas deferred from herbicide treatment are treated by other methods to reduce site competition and ensure the growth and survival of conifer crop trees.

We note that a limited slash management program was implemented during the audit term and that monitoring to quantify areas lost to slash was not conducted. The declining trend in mechanical site preparation has implications for the management of

slash. We are also concerned that the MNRF District and Regional Office did not fully meet SEM program direction.

Water crossings are a source of debate and disagreement between the HFMI and the MNRF District Office.

There were several positive observations associated with the delivery of the forest management program.

- The area renewed is aligned with the area harvested and our field site inspections found stocking densities of renewal target species (conifer and poplar) were generally high.

- The in-compliance rate achieved in FOIP inspections was high.

- Water crossing installations and road decommissioning efforts were well done.

- Forest Management Plan objectives were largely achieved, and/or progress was being made towards the achievement of the long-term management direction.

The audit team concludes that management of the Hearst Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Hearst Forest Management Inc. Licence # 550053. The Forest is being managed consistently with the principles of sustainable forest management as assessed through the Independent Forest Audit Process and Protocol.

Appendix 1

Findings

Independent Forest Audit – Record of Finding

Finding # 1

Principle 3: Forest Management Planning

Criterion: 3.1.2. Plan Production Activities

Procedure(s): Assess the effectiveness of the plan author, planning team, chair and advisors.

Background Information and Summary of Evidence:

The production of a 2017-2027 FMP for the HF began in 2014 and was originally scheduled for implementation on April 1, 2017. Delays in the preparation of the 2017 FMP resulted in the requirement to produce a Contingency Plan (CP).

Delays in the planning process were significant, often extending to months, and were attributed to a myriad of factors including;

- delay in the receipt of the Forest Resource Inventory (FRI).
- difficulties uploading FRI data to the MNRF Forest Information Portal (FiPortal).
- the requirements and direction of the Caribou Conservation Plan (CCP) and the Boreal Landscape Guide (BLG) were a beta test for multiple products and new policies which created challenges for planning.
- the application of the Woodstock Wood Supply Model and Stanley Spatial Optimizer (Remsoft) as the primary forest management planning model.
- problems with the Ontario Hydrologic Network (OHN) layer.
- differences in opinion and interpretation of model results, interpretation of technical standards, and required accuracy/precision of data products.
- re-submission of required alterations that had previously been identified as unnecessary or addressed in previous reviews.
- failure to address, or adequately address, required alterations.

The planning process was further complicated by the requirements of the Caribou Conservation Plan and the Boreal Landscape Guide, the forest condition, the high levels of utilization (for some species and products), projected wood supply reductions and requirements to address stakeholder interests. The evidence shows that planning became politicized with lobbying at the Ministerial level. There was disagreement on the application of the CCP and HFMI lobbied the MNRF to extend the area designated as “Z” block lands. Subsequent lobbying by another party occurred at draft and final plan approval, questioning the authority of the plan and planning process which further delayed plan implementation.

The adoption of a spatial optimizer (Woodstock) as the primary planning model added to the complexity of the process as planning team members and regional staff largely lacked prior experience with the model. The use of the Woodstock model was cited as a

significant factor in contributing to the significant delays in the production of the management plan as "*both the MNRF and SFL staff had to learn the intricacies of the new model*." Differences in opinion and interpretation between HFMI and MNRF District and Regional staff with respect to model results, interpretation of technical standards, and required accuracy/precision of data products resulted in a protracted and repetitive submission and review process.

A Steering Committee (SC) comprised of senior managers from MNRF and HFMI was established with a mandate to;

- *provide guidance and direction on unresolved planning team issues to ensure closure is achieved and that once decisions are made they are not revisited without due cause; and*
- *Monitor the production of the plan to ensure milestones are being met and the plan will be ready for approval on time.*

There is evidence that the SC was involved in the planning team and at the task team level to provide some level of direction and support to the planning process, however problems and issues related to the plan development persisted for a number of years.

MNRF senior management (i.e. District Manager, Regional Director, Deputy Minister) and the HFMI GM and Board members were aware of the prolonged planning exercise and the dysfunctional relationship between the organizations. Various strategies were adopted to support the planning process including attendance of managers at planning team meetings to deal with relationship problems and the engagement of a third party (Rayonier Advanced Materials Canada GP) to support HFMI and the planning team. These efforts, while enabling the eventual production of the FMP, were largely unsuccessful in reducing the level of acrimony that marred the planning exercise.

The SC and senior management at MNRF and HFMI were not able to effectively resolve resource issues and disagreements among planning team members. The development of the FMP strained relations amongst planning team members and resulted in frustration, communications breakdowns and a strained working environment.

Discussion:

Irrespective of the efforts and interventions by the SC and managers at MNRF and HFMI, it is evident that they were unable to resolve resource issues and disagreements among planning team members.

The development of the FMP resulted in significant costs to both HFMI and the MNRF, delays to the FMP planning process and a "*broken*" working relationship between HFMI and the MNRF.

The flawed Hearst FMP development process does contain critical lessons that Corporate MNRF and HFMI need to understand and address. These include lessons with respect to the application of the Woodstock model, the role of the Steering Committee, management oversight of technical/professional staff, training in new

processes and planning tools, and collaborative approaches to decision-making and problem-solving. We were informed that other FMP planning teams have experienced similar problems with planning tools (i.e. eFRI, OHN). A process to inform planning teams of the technical challenges associated with the planning tools would benefit the FMP process.

Finding # 1:

a) The implementation of the planning process strained relations amongst planning team members and resulted in frustration, communications breakdowns and a dysfunctional working environment.

b) The 2017 Forest Management Plan Steering Committee and senior managers from the Ministry of Natural Resources and Forestry and Hearst Forest Management Inc. were not successful in resolving issues and disagreements among planning team members.

c) There was a lack of training and understanding of the Woodstock model and the interpretation of the model outputs.

Independent Forest Audit – Record of Finding

Finding # 2

Principle 4: Plan Assessment and Implementation

Criterion: 4.3 Harvest

Procedure(s): Harvest operations must be conducted in compliance with all laws and regulations including the Crown Forest Sustainability Act, approved activities of the Forest Management Plan including Silvicultural Ground Rules, Annual Work Schedules and FOP. Review and assess in the field the implementation of approved harvest operations. Include the following:

- Whether harvest operations were conducted to minimize site disturbance

Background Information and Summary of Evidence:

The FMP states that "*Slash management on the Hearst Forest is focused on productive upland sites. Slash is managed through corridor site preparation by aligning the larger piles to increase productive area for artificial regeneration. The spacing is typically 7 feet apart. This is applied wherever mechanical site preparation is carried out. Further slash treatment measures, such as slash burning or piling, may be introduced at the AWS stage or when operational factors such as permitting, and fire indices are addressed*."

The FMP also states that "*area converted to non-forest or non-productive forest (e.g. slash and debris, operational roads, landing and flooded areas), should be quantified and monitored for recovery back into the productive land base. The results should be used to further refine forecasts of area converted to non-forest and non-productive forest*."

Recommendation # 13 of the 2012 IFA Recommendations required that "*HFMI take measures to reduce the loss of productive area to road right-of-ways, in block roads and landings and slash*".

Wood supply modelling forecast productive forest area lost to roads and slash at between 4-6%.

Discussion:

Our site inspections revealed that slash management could be improved. We note that HFMI did not implement other slash management treatment measures during the audit term (i.e. beehive piling, burning). We are concerned that efforts to quantify and monitor the slash management program to refine forecasts on the loss of productive

land have not been undertaken. We concluded that the 2012 IFA recommendation on slash management had not been satisfactorily addressed.
Finding # 2: The slash management program requires improvement and monitoring.

Independent Forest Audit – Record of Finding

Finding # 3

Principle 4: Plan Assessment and Implementation

Criterion: 4.5 Tending and Protection

Procedure(s):
4.5.1. Review and assess in the field the implementation of approved tending and protection operations and determine if actual operations were appropriate for actual site conditions encountered.

Background Information and Summary of Evidence:

Fine-textured soils (e.g. silt and clay soils) predominate on the Hearst Forest. These soils are conducive to the growth of hardwoods and herbaceous species which aggressively compete with conifer crop trees for site nutrients and resources. Tending treatments are required on these soils to promote the establishment and optimal growth of desired crop tree species.

The control of vegetative competition is significant for the successful implementation of the Caribou Conservation Plan. Effective tending applications ensure that the investment in artificial conifer renewal is not lost and that suitable habitat conditions for caribou are created and/or maintained. Without tending, forest unit transitions can occur as a result of the increased survival of competing hardwoods and/or reduced stocking levels of desired species due to seedling mortality or reduced levels of natural ingress.

The Long-term Management Direction has a strategic emphasis on reducing the area of hardwood dominated forest units and increasing the area occupied by conifer dominated forest units. The previous IFA identified a requirement to implement and monitor tending treatments.

Discussion:

To ensure that the renewal of conifer forest units is consistent with the planned future forest condition Hearst Forest Management Inc. must ensure that an effective vegetation management program is implemented. The investment in conifer renewal is at risk when tending treatments are not implemented, are ineffective or delayed.

HFMI elected to defer herbicide applications on 1,349 hectares in response to a concern by a local First Nation. The FN viewed the application of herbicide as a direct threat to their Indigenous Treaty Rights to hunt, gather and fish and threatened a legal

action should herbicide be sprayed. On these deferred areas HFMI should implement alternative techniques and/or approaches to vegetation management which may be more compatible with Indigenous perspectives on the control of competing vegetation (e.g. manual tending, utilization of larger planting stock) to facilitate the survival and growth of the conifer crop trees.

Although we concluded, that on balance, an effective tending program was delivered during the audit term, our site investigations revealed a number of sites where additional tending treatments were warranted and/or where the treatment had been ineffective.

Finding # 3:

Timely and effective tending treatments were not consistently implemented.

FindingsIndependent Forest Audit – Record of finding Finding # 4
Principle 4: Plan assessment and implementation … assess the effective achievement of plan objectives and compliance with laws and regulations. 4.7 Access … water crossings including crossing structures… must be conducted in compliance with all laws and regulations, including the CFSA and approved activities of the FMP and AWS. **Principle 5**: System support ..determine whether appropriate awareness, education and training programs … are in place 5.1 Human resources There must be programs that ensure current knowledge of: • regulations and legal responsibilities…including an understanding of how an individual's activities influence successful implementation of the SFM system
Background information and summary of evidence: The relationship between SFL and MNRF staff have deteriorated to the point where managers openly expressed concern and staff used words like "*broken*". One of the more contentious issues between the parties has been the approval and implementation of water crossings (culverts and bridges). Our interviews with MNRF staff, HFMI staff, several LCC members and a review of numerous documents confirmed this fact. In response to our information requests both organizations provided us with explanations and documentation supporting their version of past and ongoing issues. We had not encountered these types of water crossing issues in numerous past IFA audits, including audits in the MNRF northeastern region. A sample of past IFA audits by other audit firms also did not reveal the level of acrimony we encountered. The submission and approval process is straightforward. While there is overlap, there are two general information requirements associated with water crossing approval and implementation. These are fisheries/environmental concerns and technical/engineering

requirements. The fisheries/environmental concerns are primarily addressed in the *Ministry of Natural Resources and Forestry/Fisheries and Oceans Canada Protocol for the Review and Approval of Forestry Water Crossings*. Technical issues are addressed through the FMP approved water crossing standard with associated data (e.g. Q 25 calculation, Ontario Flow Assessment Tool results, sizing diagram, etc.). Bridges are constructed in accordance with the Crown Land Bridge Guidelines (CLBMG). Water crossing applications are submitted as part of the Annual Work Schedule submission. The MNRF review includes both the fisheries/environmental aspect of the submission and adherence to engineering requirements.

On the Hearst Forest operational issues started to emerge in January of 2017 related to interpretation of the Crown Land Bridge Guidelines. From that point on there were disputes arising from alleged HFMI or MNRF actions/inactions, interpretations of guidelines/policies and implementation of final decisions. Examples include MNRF concerns about culverts reducing and channeling water flow (e.g. stream width being reduced as it passes through a culvert), opinions on what is and is not fisheries habitat, cold versus warm water stream designation, overall culvert sizes and, the interpretation of bridge guidelines.

MNRF staff indicated that their involvement and direction with respect to water crossing structure/dimensions, etc. is required to ensure crossing structures protect the public and the environment. HFMI does not dispute safety or environmental objectives.

Both forest managers indicated that the other party lacked understanding. HFMI staff were concerned with the applicability of guidelines at specific crossings and ongoing information requests from MNRF District staff. HFMI staff were of the opinion that that MNRF District staff failed to appreciate the time and financial costs associated with responding to some of their requests. MNRF staff indicated that "… *the SFL has a lack of understanding in regard to the time required to review a proposed water crossing."*

In 2017, HFMI formally requested that MNRF conduct joint training to address the ongoing disputes and better align MNRF and HFMI interpretation of guidelines. The request was received by Regional management staff, but no training occurred. A MNRF response to the auditor's preliminary finding on this subject was that "*The MNRF can't and will not train the forest industry on these more or less complex topics"* and with respect to bridges *"…there is only one valid interpretation of the CLBMG and it is the crowns interpretation."*

The purpose of the CFSA is "*to manage Crown forests to meet social, economic and environmental needs of present and future generations."* In our correspondence review and interviews we noted MNRF technical/professional staff maintained a focus on the CFSA *"environmental*" purpose, but we were unable to detect consideration of the "...*social and economic*…" purposes. That's somewhat understandable in that the management levels of the MNRF usually bring those aspects of the CFSA into play, where applicable, to achieve the balance that ensures the benefits of forest management continue to flow to local communities. However, that does require management overview and critical analysis of staff decisions.

Responses to our requests for information suggest that both the MNRF and HFMI management had taken a "*side*" on the issue as opposed to cooperatively resolving it.

This ongoing dispute between the MNRF and HFMI that interferes with the implementation of the FMP.

Discussion:

We have not encountered this degree of water crossing disputes in completing numerous IFAs. After reviewing applicable documents and completing numerous interviews it is our assessment that the MNRF and HFMI share the responsibility for allowing this dispute to continue. In our view, some MNRF staff demonstrate a zero-risk approach in their interpretation and application of guidelines, and do not understand some of the economic realities of operating an SFL and the costs of sustaining the flow of benefits to the Ontario economy. On the other hand, HFMI has not adhered to some submission deadlines and does not fully understand the issues associated with reviews and approvals that MNRF has to deal with.

MNRF and HFMI managers need to intervene in the dispute, put appropriate training in place, provide more critical oversight of staff decisions, and solve this problem.

Finding # 4:

The lack of a shared understanding and interpretation of water crossing requirements between Hearst Forest Management Inc. and the Ministry of Natural Resources and Forestry Hearst District Office continues to interfere with the effective implementation of the Forest Management Plan.

Independent Forest Audit – Record of Finding

Finding # 5

Principle 6: Monitoring

Criterion: 6.3 Silvicultural Standards Assessment Program

Procedure(s): Assess whether the management unit assessment program (SFL and MNRF District) is sufficient and is being used to provide the required Silviculture Effectiveness Monitoring (SEM).

Background Information and Summary of Evidence:

The Northeast Regional (NER) Silvicultural Effectiveness Monitoring Strategy (2012) states "*it is important that the MNR as stewards of the Crown Forest corroborate SFL results*". In reference to the SEM program Recommendation # 4 of the 2012 Auditor General Report of Ontario stated "*To ensure the SEM program adequately assesses the effectiveness of industry reported renewal efforts in regenerating Crown Forests, the MNR district offices should complete all core tasks as outlined in the program and follow-up with forest management companies on sites found not to have met the free-to-grow criteria to ensure that companies subsequently took appropriate remedial regeneration measures*." The 2001 SEM manual states that "*foresters from industry and the MNRF should examine whether certain treatments are meeting expectations and if they are not, they should investigate why the treatments were not successful and make appropriate modifications in the future*." In response to the Auditor General recommendation, MNR Regional Operations Division committed to "*take steps to improve the completion rate of the core tasks prescribed under the SEM program*."

The SEM program has four basic tasks. Core Task # 1 requires the survey of SFL stands declared as FTG. The District Office completed SEM for each year of the seven-year audit term but limited its monitoring efforts to Core Task # 1. There were apparent discrepancies between the results reported by the SFL and District which can reasonably be attributed to differences in the sampling methodologies, staff experience, etc.

SEM report specifications are not articulated by the MNRF. However, the quality of District SEM reporting was variable, and did not include information with respect to the rationale for findings, emerging trends or areas requiring further investigation.

The NER Strategy document identifies "*opportunities for an annual SEM information exchange meeting for both MNR and SFL staff to review results and lessons learned*" as a Best Management Practice. During the audit term the SFL holder and the MNRF staff indicated that discussions have taken place to discuss the respective SEM results and variances, but these were not held consistently throughout the term.

Discussion:

The effectiveness of forest operations prescriptions in achieving the desired forest unit must be understood to provide reliable information for forest management planning (e.g. development of SGRs, SFMM inputs, FMP objectives). Information collected through the SEM Core Tasks assists in the determination/assessment of the extent to which regeneration efforts meet the regeneration standard. The information also aids in the assessment (over time) of the effectiveness of the SFL holder silviculture program, conformance of silviculture activities with the FMP and forest sustainability. With silviculture investments in excess of $19 million monitoring is required to ensure the investment is meeting FMP objectives and is consistent with the achievement of the LTMD.

In discussions with MNRF Northeast Regional staff, it became clear that the Region was not provided with corporate direction and guidance from the Policy Division or Regional Operations Division with respect to the provincial SEM program. It is unclear where the responsibility for an effective provincial SEM program resides (i.e. policy, coordination, design, implementation and evaluation).

Finding # 5:

The Ministry of Natural Resources and Forestry Northeast Regional Office and the Hearst District Office did not fully meet Silviculture Effectiveness Monitoring program direction on the Hearst Forest.

Appendix 2

Management Objectives Table

2007- 2017 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET)	AUDITORS COMMENTS
Forest Diversity – Natural landscape pattern and distribution		
1. To emulate, through harvest configurations, the shape and orientation of natural fires where possible.	MET	Ninety-two percent of the planned harvest area was cut. The shape and orientation of cut blocks closely emulates fire disturbances.
2. To maintain or develop over time a range of forest patches across the landscape that emulate a natural disturbance pattern and provide habitat for interior forest wildlife species.	PARTIALLY MET	There is a movement toward larger disturbance patches (i.e. >260 ha).
3. To maintain patches of standing forest within cutovers that emulate the patterns of residual forest that are left by natural disturbance.	MET	Patches of standing timber in cutovers emulate those left by natural disturbance events.
4. To maintain a similar proportion of Forest Units, especially to maintain mixedwoods.	PARTIALLY MET	A relatively minor increase in the area occupied by mixedwood forest units occurred during the audit term.

2007- 2017 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET)	AUDITORS COMMENTS
Forest Diversity – forest structure, composition, and abundance		
5. To maintain sufficient area and age in each serial stage by forest unit through time.	PARTIALLY MET	Level of mature and over-mature forest is reduced by 10% over the long term bringing it closer to a natural condition and towards the desired level.
6. To maintain the old growth component of all forest units at a quantity similar to the levels achieved by the null run, greater than or equal to 50%, and less than the current level.	MET	The target was achieved in the LTMD.
7. To maintain the uncommon species on the Forest i.e. black ash, white elm, red and white pine, and yellow birch,	MET	Uncommon species are protected by AOCs or not cut during harvest operations.
Forest Diversity – habitat for animal life		
8. To maintain the area of diverse types of forest required to meet the habitat needs of the selected featured species to the long-term average historic condition, while generally following the trend of the natural benchmark for the forest.	MET	Areas of habitat for preferred species maintained at 60% or above the null value for martin, moose (browse and winter), black backed woodpecker, red breasted nuthatch, barred owl, bay breasted warbler and woodland caribou.

2007- 2017 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET)	AUDITORS COMMENTS
9. To consider the habitat needs of Woodland Caribou that can be influenced by the manipulation of forest cover in the area indicated on the caribou management map.	MET	Four core areas have been maintained in the Caribou Recovery zone in accordance with the Caribou Habitat Strategy in the 2017-2027 Contingency Plan.
10. To minimize the impact of forestry operation on Bald Eagle nest sites.	MET	No known nest sites were identified within the planned harvest allocation.
11. To ensure that forestry operations do not negatively impact non timber values associated in forest cover.	MET	Forest operations achieved a 99% in compliance rate
12. To minimize impacts of forest operations on fishery and water quality.	MET	Despite the controversy over water crossings we found that water quality was not impacted. Impacts on fisheries and water quality were also minimized by the proper implementation of AOCs.
Social and Economic – healthy forest ecosystems		
13. To maintain or improve the current compliance record by decreasing instances of non-compliance in the carrying out of forest operations	MET	An excellent compliance record was achieved during the audit term.
14. To minimize negative impacts of forestry	MET	There have been no incidences of non-

2007- 2017 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET)	AUDITORS COMMENTS
operations on resource-based tourism values.		compliance related to resource-based tourism values.
Social and Economic - community well being		
15. To ensure that enough roads are in place to allow for effective and efficient forest operations while also limiting company and ministry liability for roads that are no longer required.	PARTIALLY MET	The current assessed level is 0.19 km per km^2 within areas harvested. Movement has been made towards goal of 0.22 km per km^2.
16. To maintain long term access in the area covered by the Caribou Management Map only for the time period needed to complete forest management activities.	NOT MET	The target road density is 0.15 km per km^2. The road density increased during the audit term.
17. Encourage the maximum utilization of available forest resources.	MET	Ninety two percent of the planned AHA was utilized. Markets for poplar were limited during the audit term.
18. Encourage that 100% of the actual volume is utilized by the applicable mill.	PARTIALLY MET	During the term of the audit, 77% of the planned harvest volume for Spruce-Pine-Fir (SPF), and 16% of Poplar was utilized
19. To effectively consult with First Nations communities in and around the Hearst Forest	MET	The First Nations communities were contacted by April 2004, prior to the

2007- 2017 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET)	AUDITORS COMMENTS
in an attempt to have their involvement in the production of the Hearst Forest Management Plan.		commencement of the formal consultation process for the 2007-17 plan. Twenty-eight separate meetings or events were held with FNs regarding the FMP. A CL FN representative did attend planning team meetings
20. To provide the opportunity to meet with all CL FN trappers during the plan development where forestry operations are proposed to overlap with CL FN traplines.	MET	Trappers were notified and consulted in instances where forest operations affected traplines. Work continues to build better relations with the CL community members.
21. To respectfully incorporate Native Values information in order to mitigate negative impacts of forestry operations.	MET	Aboriginal values were protected by AOCs and Aboriginal Background Reports were used in the planning process.
22. To effectively consult with the stakeholders of the Hearst Forest where forest management planning affects users and allow the LCC to evaluate the effectiveness of that consultation following plan productions	PARTIALLY MET	Stakeholders were consulted and information sessions were conducted as required by the FMPM. We note that the HLCC was a participant in a combined effort directed at senior MNRF officials and elected politicians, to review the application of the caribou policy based on MNRF caribou radio tracking data, and the

2007- 2017 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET)	AUDITORS COMMENTS
		concern that the policy would have a long term negative impact on the viability of HFMI and employment at local wood mills.
23. To provide opportunities for the public to collect firewood close to the communities of Mattice, Hearst, Jogues and Constance Lake.	MET	Areas for firewood collection were made available to the communities and fuelwood was trucked to the Constance Lake FN.
Social and Economic - Silviculture		
24. To ensure that all productive forest land is regenerated and declared Free to Grow to the regeneration standards within the forecast time period.	MET	Ninety-eight percent of the area surveyed for free to grow status were declared successfully regenerated and free to grow.
25. To plant only seedlings genetically adapted to this area.	MET	All seedlings planted during the audit term originated from seed zone 16 or 17.
26. To return the use of fire as a silvicultural tool on the Hearst Forest.	NOT MET	No prescribed burns were conducted.
Social and Economic – Harvest Levels		
27. To provide for sustainable and continuous harvest levels (area and volume) that,	MET	The long-term projected available harvest area and volume by species

2007- 2017 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (MET, PARTIALLY MET, NOT MET)	AUDITORS COMMENTS
to the extent possible, meet the wood supply demands over the short, medium, and long terms by species group.		group and forest unit has been achieved.
28. To plan that actual harvest area and volume equals the available and forecast and planned harvest area.	PARTIALLY MET	More than 95% (target>90%) of forest units were allocated to be harvested. Planned harvest volumes were higher than the actual volumes achieved.
29. To minimize the loss of forest area from the productive forest land base available for timber production.	PARTIALLY MET	The slash management program requires improvement (Finding # 2). The area renewed is aligned with the area harvested.
30. To minimize the incidents of site disturbance caused by forest operations.	MET	The target to have less than 1.5 non-compliance reports per year over the term of the audit was met. No incidences of significant site disturbances were observed during the field audit.

Appendix 3

Compliance with Contractual Obligations

Payment of Forestry Futures and Ontario Crown charges.	Payments of Forestry Futures and Crown Charges were made in full.
Wood supply commitments, MOAs, sharing arrangements, special conditions.	All wood supply commitments and MOAs have been met. On July 14, 2011, the Board of Directors accepted Levesque Plywood Limited doing business under the name Columbia Forest Products as a shareholder, and therefore the requirements of a MOA are not applicable.
Preparation of FMP, AWS and reports; abiding by the FMP, and all other requirements of the FMPM and CFSA.	The 2019 FMP was completed and approved in time for operations to commence. The plan was completed in accordance with the FMPM and met the requirements of the CFSA. The AWSs and ARs met reporting and format requirements.
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM.	All required surveys and data collection were completed as required and in accordance with FIM requirements.
Wasteful practices not to be committed.	There were no recorded instances of wasteful practices during the audit term.
Natural disturbance and salvage SFL conditions must be followed.	There were no salvage operations.
Protection of the licence area from pest damage, participation in pest control programs.	Pest management activities were not required during the audit term.
Withdrawals from licence area.	There were no withdrawals from the licence area.
Audit Action Plan and Action Plan Status Report prepared.	An Audit Action Plan and Action Plan Status Report were prepared. The 2012 IFA provided a recommendation that Action Plan outcomes be monitored. A Status Report was completed. Our review indicated that action on past recommendations (with 2 exceptions) had been taken. Findings are provided for those issues.

Payment of forest renewal charges to Forest Renewal Trust (FRT).	As of April, 2019 there are no outstanding FRT charges.
Forest Renewal Trust eligible silviculture work.	Our field investigations verified that payments were for eligible silviculture work.
Forest Renewal Trust forest renewal charge analysis.	Forest Renewal Trust renewal charge analysis work was completed annually and approved by the MNRF.
Forest Renewal Trust account minimum balance.	The Minimum balance of $ 3,902,400 was maintained every year except for 2018/19, the last year of the Audit term. As of April, 2019 there was a deficit in the account of $220,348. This deficit has been addressed. As of September 2019, the value of the Trust exceeds the minimum balance.
Silviculture standards and assessment program.	Silviculture assessment work was completed annually.
First Nations and Métis opportunities.	Opportunities were made available.
Preparation of a compliance plan.	Compliance plans were prepared as required.
Internal compliance prevention/education program.	There were active internal compliance/education programs.
Compliance inspections and reporting; compliance with compliance plan.	The compliance program conformed to priorities and directions in the Compliance Plan.
SFL forestry operations on mining claims.	SFL forestry operations on mining claims were in compliance with requirements.

Our assessment is that HFMI was fully in compliance with its contractual obligations.

Appendix 4

Audit Process

Appendix 4
Audit Process

The IFA consisted of the following elements:

Risk Assessment: A risk assessment was completed in April 2019 to determine which IFAPP optional procedures would be audited. The risk assessment report was submitted to the Forestry Futures Trust Committee and the MNRF Integration Branch for acceptance on April 9, 2019.

Audit Plan: An audit plan describing the schedule of audit activities, audit team members, audit participants and the auditing methods was prepared and submitted to HFMI, the MNRF Hearst District and Northeast Regional Office, the Forestry Futures Trust Committee and the LCC Chair in April 2019.

Public Notices: Public participation in the audit was solicited through the placement of a bilingual notice in the Journal le Nord. A random mailing to 345 individuals/organizations listed on the 2019 FMP mailing list was also conducted.

All LCC members received emails and follow-up telephone calls with an invitation to participate in the audit process.

All Indigenous communities with an interest in the Forest were contacted by mail to participate and/or express their views. Indigenous community leaders received several follow-up calls and/or e-mails.

Field Site Selection: Field sample sites were selected randomly by the Lead Auditor in August. Sites were selected in accordance with the guidance provided in the IFAPP (e.g. operating year, contractor, geography, forest management activity, species treated or renewed, and access) using GIS shapefiles provided by the HFMI.

Site Audit: The audit team spent 5 days on the HF in September conducting the field audit, document and record reviews and interviews. The field audit was designed to achieve a minimum 10% of the forest management activities that occurred during the audit term (see the IFA Field Sampling Intensity on the HF below). A sample of the areas invoiced in the "*Forest Renewal Trust Specified Procedures Report"* (SPR) was also inspected to verify conformity between invoiced and actual activities[13]. The field inspection included site-specific (intensive) and landscape-scale (extensive helicopter) examinations. The Closing Meeting was held on September 26, 2019.

Not every hectare of the area sampled is surveyed, as this is not feasible. Individual sites are initially selected to represent a primary activity (e.g. harvesting, site preparation) but all associated activities that occurred on the site are assessed and reported in the sample table. The audit team also inspected the application of Areas of

[13] Fiscal year 2017-2018.

Concern prescriptions, aggregate pit management and rehabilitation and water crossing installations.

Report: This report provides a description of the audit process and a discussion of audit findings and conclusions.

Table 11: Procedures Audited by Risk Category

Principle	Optional – Applicable (#)	Optional – Selected (#)	Optional - % Audited	Mandatory Audited (#) (100% Audited)	Comments
1. Commitment	N/A	N/A	N/A	N/A	The FSC certification met IFAPP Principle 1 criterion.
2. Public Consultation and FN/Métis Community Involvement& Consultation	5	0	0	2	
3. Forest Management Planning	27	0	4	31	
4. Plan Assessment & Implementation	4	0	0	8	
5. System Support	N/A	N/A	N/A	N/A	The FSC certification met IFAPP Principle 5 criterion.
6. Monitoring	10	1	10	9	6.4 Findings support auditor conclusion.
7. Achievement of Management Objectives and Forest Sustainability	0	0	0	12	
8. Contractual Obligations	5	0	0	23	

Table 12: IFA Field Sampling Intensity

Activity	Audit Term Total Area (Ha) / Number	Planned Sample Area (Ha)/Number	Actual Area (Ha)/Number Sampled	Number of Sites Visited	Percent Sampled
Harvest	48,747	4,874	6,799	33	14
Renewal	43,068	4,306	6,842	32	16
Site Preparation	8,706	870	2,572	13	30
Tending	12,050	1,205	2,915	11	24
FTG	36,035	3,603	3,963	5[14]	11
Water Crossings (# of Crossings)	67	6		16	24
Aggregate Pits (# of Pits)[15]	47	7		7	15
SPA Activities[16]	11,247	1,125	3,110	13	28

Source: HFMI Forestry Shapefiles/Annual Reports

Summary of Consultation and Input to the Audit

Public Stakeholders

Public participation in the audit was solicited through the placement of a bilingual public notice in the Journal le Nord. The notice directed interested individuals to contact the audit firm with comments or complete a bilingual survey questionnaire on forest management during the audit term on the Arbex website.

Three hundred and forty-five individuals/organizations on the FMP mailing list received a bilingual letter soliciting comments on the management of the HF during the audit term. One response was received. This response included several complaints including a complaint that the MNRF and HFMI were poorly managing the Hearst Forest and a claim that notification of herbicide spraying was not issued.[17]

[14] Large Aggregate Areas
[15] Open or Closed during the audit term.
[16] 2017-2018 Annual Report
[17] The audit team confirmed that MNRF and HFMI followed requirements for the notification of aerial spraying.

MNRF District and Regional Staff

MNRF District staff who attended the field audit and/or had responsibilities on the HF were interviewed. Regional staff were interviewed by telephone. General comments and concerns expressed by staff to the auditors were:

- Dissatisfaction with the forest management planning process.
- Concern with respect to the quality of planning products submitted by the SFL holder.

HFMI

HFMI staff were interviewed and participated in the field audit. General comments made to the audit team included:

- Dissatisfaction with the forest management planning process.
- Concern with the length of time required to receive approvals for crossings.
- Concern with the application of the CCP on the HF.
- Concern that there is a lack of a Woodstock base model for planning teams.
- A requirement that problems with planning tools (i.e. eFRI, OHN) be addressed.

LCC Members

Individual members of LCC received a letter inviting their participation in the audit and several LCC members were interviewed. General comments to the audit team included:

- Opposition to the MNRF focus on Caribou
- Opposition to general road decommissioning

First Nations Communities

All Indigenous communities with an identified interest in the Forest were contacted by mail, telephone and/or email and asked to express their views on forest management during the audit term and/or participate in the field audit. Comments expressed to the audit team included:

- Opposition to the implementation of the CCP.
- Opposition to the use of herbicides on the Forest.

Appendix 5

List of Acronyms Used

List of Acronyms Used

AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
BLG	Boreal Landscape Guide
BW	White Birch
B.Sc.F.	Bachelor of Science in Forestry
CCP	Caribou Conservation Plan
CFSA	Crown Forest Sustainability Act
CLAAG	Careful Logging Around Advanced Growth
CLBMG	Crown Land Bridge Management Guidelines
CLFN	Constance Lake First Nation
CRO	Conditions on Regular Operations
DCHS	Dynamic Caribou Habitat Schedule
ESA	Endangered Species Act
FAP	Forestry Aggregate Pit
FFTC	Forestry Futures Trust Committee
FN	First Nation
FOIP	Forest Operations Information Program
FOP	Forest Operations Prescription
FOSM	Forest Operations and Silviculture Manual
eFRI	Enhanced Forest Resource Inventory
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual

FRT	Forest Renewal Trust
FRMA	Forest Roads and Maintenance Agreement
FSC	Forest Stewardship Council
FTG	Free-to-Grow
FU	Forest Unit
GST	Group Seed Tree
Ha	Hectares
HF	Hearst Forest
HFMI	Hearst Forest Management Inc.
HLCC	Hearst Local Citizens Committee
IEA	Individual Environmental Assessment
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
KM	Kilometer
LCC	Local Citizens Committee
LTMD	Long Term Management Direction
m^3	Cubic Metres
MECP	Ministry of Environment, Conservation and Parks
MNRF	Ministry of Natural Resources and Forestry
NER	Northeastern Region
NDPEG	Natural Disturbance Pattern Emulation Guide
NIC	Not in Compliance
PO	Poplar
OLT	Ontario's Landscape Tool
R.P.F.	Registered Professional Forester
SAR	Species at Risk

SEM	Silviculture Effectiveness Monitoring
SFL	Sustainable Forestry Licence
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rule
SIP	Site Preparation
SPF	Spruce/Pine/Fir
SPR	Specified Procedures Report
SSG	Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales
VS	Versus

Appendix 6

Audit Team Members and Qualifications

Appendix 6

Audit Team Members and Qualifications

Name	Role	Responsibilities	Credentials
Bruce Byford R.P.F. President Arbex Forest Resource Consultants Ltd.	Lead Auditor Forest Management Planning & Silviculture Auditor	Audit Management & coordination Liaison with MNRF and FFTC Review documentation related to forest management planning and review and inspect silviculture practices Determination of the sustainability component.	B.Sc.F. ISO 14001 Lead Auditor Training. FSC Assessor Training. 39 years of consulting experience in Ontario in forest management planning, operations and resource inventory. Previous work on 43 IFA audits with lead auditor responsibility on all IFAs. 27 FSC certification assessments with lead audit responsibilities on 7.
Al Stewart Arbex Senior Associate	Public Participation including First Nations & LCC Participation in Forest Management Process Forest Compliance	Review documentation and practices related to forest management planning & public participation/consultation processes. Review & inspect AOC documentation & practices. Review of operational compliance. Determination of the sustainability component.	B.Sc. (Agr) ISO 14001 Lead Auditor Training. FSC assessor training. 48 years of experience in natural resource management planning, field operations, policy development, auditing and working with First Nation communities. Previous work experience on 43 IFA audits.
Riet Verheggen R.P.F. Arbex Associate	Silviculture and Contractual Compliance	Determination of the sustainability component. Review and inspect silvicultural practices and related documentation. Review and inspect documents related to contractual compliance.	B.Sc.F. 25 years of experience in natural resource management, policy development, and auditing. Previous work on 3 IFAs.