

**Report of an Independent Audit of Forest Management
on the Nipissing Forest for the Period
2006 to 2011**

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May 2012

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1.0 EXECUTIVE SUMMARY

A team of five auditors carried out an independent audit of forest management on the Nipissing Forest covering the period from April 1, 2006 to March 31, 2011.

The Nipissing Forest has been managed by the Nipissing Forest Resource Management Inc. (NFRM) since the Company was granted Sustainable Forest License (SFL) #542053 by the Ontario Ministry of Natural Resources (OMNR) on July 3, 1996. Operations during this audit period have been conducted under the auspices of the final three years of the forest management plan commencing April 1, 2004 (2004-2024) and the first two years of a second plan commencing April 1, 2009 (2009-2029). The North Bay District holds the main responsibility for this Forest for the OMNR. The audit examined compliance with the terms and conditions of the SFL agreement and reviewed the OMNR's performance in meeting its obligations on the Forest. The audit included an extensive review of the 2004 and 2009 forest management plans, as well as the process and planning effort leading to the 2009-2029 forest management plan. Records of forest management activities were also reviewed, along with field verification visits to areas where a variety of forest management activities occurred during the audit period. Public input was solicited through newspaper advertising, individual interviews, and mail-in surveys.

This audit report identifies 14 recommendations aimed at improving the management and administration of the Nipissing Forest.

Nipissing Forest Resource Management Inc. has significantly improved the effectiveness of its silvicultural program. The auditors viewed a program that was uncommonly innovative and actively monitored.

Similarly, NFRM continues to maintain a very strong outreach program with recreational and tourist operators on the Forest. The program has developed a strong legacy of consideration of values and cooperation with this important sector in this Forest.

The OMNR Regional Director issued a directive in response to an issue resolution request, which restricted access on a public highway. In the opinion of the audit team, this directive was beyond the scope of the *Crown Forest Sustainability Act (CFSA)*. A recommendation has been issued to restrict that practice.

Four recommendations target the forest management planning process. The 2009 FMP contains a number of objectives and indicators that are either beyond the scope of the CFSA or not measurable. The auditors have recommended these be revised in the next plan. Ontario Ministry of Natural Resources needs to take care to ensure required alterations identified as part of the forest management plan review process are within the scope of the CFSA and that the OMNR District improves its consistency in review and approvals of plan amendments and revisions.

The final planning recommendation stemmed from the use of outdated forest resource inventory information as the base data for all planning activities. Ontario's forest planning

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process relies upon forecasts based upon the inventory of forest stand development, timber supply, and habitat availability for 100 years into the future. The audit has recommended that OMNR District and the Company develop a strategy for expeditiously accommodating data contained in a new inventory when it becomes available in early-to-mid 2014.

The soils noted in the McConnell Lakes area seemed to the auditors ideally suited to red and white pine growth, but is presently growing mixedwood stands. A recommendation has been issued to seek supplemental funding to bring this area to a more ecologically appropriate forest.

The road leading to the McConnell Lakes area were poorly signed and relatively heavily travelled. A recommendation has been issued to increased signage as a matter of public safety.

The audit has issued recommendations aimed at improving the administrative effectiveness of both OMNR and NRFM to ensure documents are properly reviewed and optimally useful.

The audit team's overall conclusion of the state of this Forest is strongly positive. Harvest levels have been relatively consistent over the past 15 years, varying less than 10%. Forest renewal is being maintained in a consistently successful manner. The SFL holder and OMNR District have accepted the challenge of managing the implementation of species-at-risk legislation in a positive and professional manner.

The Company and OMNR have worked diligently to address deficiencies noted on the previous audit. In the auditors' opinion, the Forest is well managed. Technical aspects of forest management are completed in a satisfactory manner. The Company is satisfactorily meeting the terms and conditions of the SFL. Ontario Ministry of Natural Resources is also meeting its overall responsibilities associated with its role in managing this Forest. The audit team confirms that, based on the evidence reviewed, management of the Nipissing Forest was in compliance with the legislation, policy, and regulations that were in effect during the 2006-2011 audit term. The Nipissing Forest is being managed sustainably. The audit team recommends that the term of the SFL be extended for an additional five years.

2.0 TABLE OF AUDIT FINDINGS

Recommendation on License Extension
<p>The audit team concludes that management of the Nipissing 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 License held by NFRM. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol (OMNR 2011). The audit team recommends the Minister extend the term of Sustainable Forest License #542053 for a further five years.</p>
Recommendations Directed to the SFL Holder/OMNR District(s)
<p>Recommendation 3: The planning team for the Nipissing Forest must ensure objectives in future plans are measurable, predictable, relevant, understandable, valid, and feasible. Further, the auditors recommend that Ontario Ministry of Natural Resources ensure that all objectives in the forest management plan are within the scope of the <i>Crown Forest Sustainability Act</i> before approving a plan.</p>
<p>Recommendation 4: Ontario Ministry of Natural Resources shall amend the area of concern prescriptions for Self Sustaining Trout Lakes in a manner consistent with recent Ontario Ministry of Natural Resources Regional direction. The new area of concern prescription should include a requirement to minimize maintenance and improvement of existing roads within 400 m of the tree line (proposed Zone 1 and 2).</p>
<p>Recommendation 6: The Ontario Ministry of Natural Resources District must improve its consistency in review, classification, and approval of plan amendments and revisions.</p>
<p>Recommendation 7: Nipissing Forest Resource Management Inc., in cooperation with OMNR North Bay District, shall make efforts to explore options for performing maintenance work on the two tree improvement sites located on the Nipissing Forest. The Company shall also determine if these facilities could be utilized as sources of genetically improved seed for use with their renewal program.</p>
<p>Recommendation 8: Nipissing Forest Resource Management Inc. shall seek out additional funding sources to assist in its efforts to restore white and red pine on sites that are ideally suited for growing these species.</p>
<p>Recommendation 9: In the interest of public safety, Ontario Ministry of Natural Resources North Bay District and Nipissing Forest Resource Management Inc. shall work cooperatively to identify and address probable safety hazards in the road system by employing appropriate remedial measures to reduce such hazards.</p>
<p>Recommendation 11: Nipissing Forest Resource Management Inc. shall ensure that adequate resources are available to more closely align the level of regeneration assessment to the level projected in the approved forest management plan.</p>
<p>Recommendation 12: Ontario Ministry of Natural Resources North Bay District shall share the silviculture effectiveness monitoring audit reports it produces annually with Nipissing Forest Resource Management Inc. and discuss the report findings with the Company.</p>

<p>Recommendation 13: Nipissing Forest Resource Management Inc. shall ensure that in future reports, where their purpose is to evaluate past performance (e.g., Year 10 Annual Report), statements that are intended to stand as recommendations should be clearly highlighted in the report text.</p>
<p>Recommendation 14: Ontario Ministry of Natural Resources North Bay District shall complete its review of the Year 10 (2008-2009) Annual Report in accordance with the direction outlined in the 2009 Forest Management Planning Manual. Furthermore, they shall ensure that sufficient resources are available to ensure that future mandatory reviews of annual reports are completed in accordance with the applicable requirements.</p>
<p style="text-align: center;">Recommendations Directed to OMNR</p>
<p>Recommendation 1: Corporate and Regional Ontario Ministry of Natural Resources shall restrict its issue resolution decisions to those that it can make under the <i>Crown Forest Sustainability Act</i>.</p>
<p>Recommendation 2: Corporate Ontario Ministry of Natural Resources must ensure that a new forest resource inventory is delivered and implemented to replace the current inventory so that future forest management plans are not developed with such aged and inaccurate data.</p>
<p>Recommendation 5: Ontario Ministry of Natural Resources must ensure that all required alterations to forest management plans requested by the Crown are within the purview and scope of the <i>Crown Forest Sustainability Act</i>.</p>
<p>Recommendation 10: Corporate Ontario Ministry of Natural Resources shall arrange to provide additional training to all individuals involved with the compliance monitoring programs on the Nipissing Forest with regard to the use of the Forest Operations Inspection Program in light of the procedural and policy changes adopted in the Forest Compliance Handbook (2010).</p>

3.0 INTRODUCTION

3.1 AUDIT PROCESS

An independent forest audit of the Nipissing Forest was undertaken from June to October of 2011. The objective of the audit was to assess the performance of forest management activities conducted during the five years from April 1, 2006 to March 31, 2011 as measured against the plans, guidelines, regulations, and legislation in force during that period. The audit was conducted in compliance with the *Crown Forest Sustainability Act (CFSA)* (Statutes of Ontario 1994) and fulfills the requirements of the *Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario* (Ontario Ministry of Environment and Energy 2003). The audit assessed the effectiveness of forest management activities in achieving the management objectives for the Forest. The audit examined the compliance of Nipissing Forest Resource Management Inc. (NFRM) with the terms and conditions of Sustainable Forest License (SFL) #542053. The audit also reviewed the performance of Ontario Ministry of Natural Resources (OMNR) in meeting its obligations on the Forest.

The audit was conducted in accordance with the Independent Forest Audit Process and Protocol (OMNR 2011) by a team of five independent auditors, consisting of three registered professional foresters (RPF), a biologist/ecologist, and a socio-economist. Their qualifications are presented in Appendix 6.

Operations during this audit period have been conducted under the auspices of the final three years of the forest management plan commencing April 1, 2004 (2004-2024) and the first two years of a second plan commencing April 1, 2009 (2009-2029). Consequently, the audit included an extensive review of the 2004 and 2009 forest management plans (FMP), as well as the process and planning effort leading to the 2009-2029 FMP.

The auditors collected evidence through document review, interviews with staff and stakeholders, and physical inspection of field activities that occurred on the Forest between April 1, 2006 and March 31, 2011. Field site visit locations were selected to evaluate harvest, renewal, tending/maintenance, free-to-grow (FTG) operations, areas of concern (AOC), road construction and maintenance, site preparation, water crossings, wildlife management activities, and other areas of special interest. Additional details on the audit process and sampling are provided in Appendix 4.

3.2 MANAGEMENT UNIT DESCRIPTION

The Nipissing Forest is currently administered and managed by NFRM under the auspices of SFL #542053. The Company is owned by shareholders R. Fryer Forest Products Ltd., Goulard Lumber Ltd., Tembec Inc. (Mattawa Division), Hec Cloutier and Sons Inc., and GP Northwoods LP Industries.

The Nipissing Forest extends over 11,932 km² and has a permanent population of approximately 86,000. The city of North Bay has a population of 53,000 and is a supply and communications centre for much of northeastern Ontario. North Bay is a focal point for a ring of smaller, nearby

communities which include Sturgeon Falls, Verner, Powassan, and Mattawa. The town of Temiskaming, in Quebec on the east side of the Ottawa River, also relies to a great extent on the services provided by the North Bay community.

Private land comprises 23% area of the Nipissing Forest and is concentrated in the southern and central-western part of the area. The forest in the eastern part of the management unit was cleared in the past for agricultural activities, which has resulted in hundreds of hectares of idle marginal agricultural land that could make a significant contribution to the District's future wood supply with proper management.

There are 18 existing or soon-to-be regulated provincial parks, either partly or entirely within the boundaries of the Nipissing Forest, as well as 21 conservation reserves.

Two First Nation reserves, Dokis First Nation and Nipissing First Nation, are situated in the western and central parts of the Forest, respectively. Two other Aboriginal communities, the Mattawa/North Bay Algonquins and the Antoine First Nation, are located in the Mattawa area. The Temagami First Nation is located north of the Nipissing Forest, but use parts of the Nipissing Forest for traditional uses. The provincial government has no land use jurisdiction on the First Nation reserves, but timber extraction is an important activity on these lands and many band members are involved in timber management on the adjacent Crown lands.

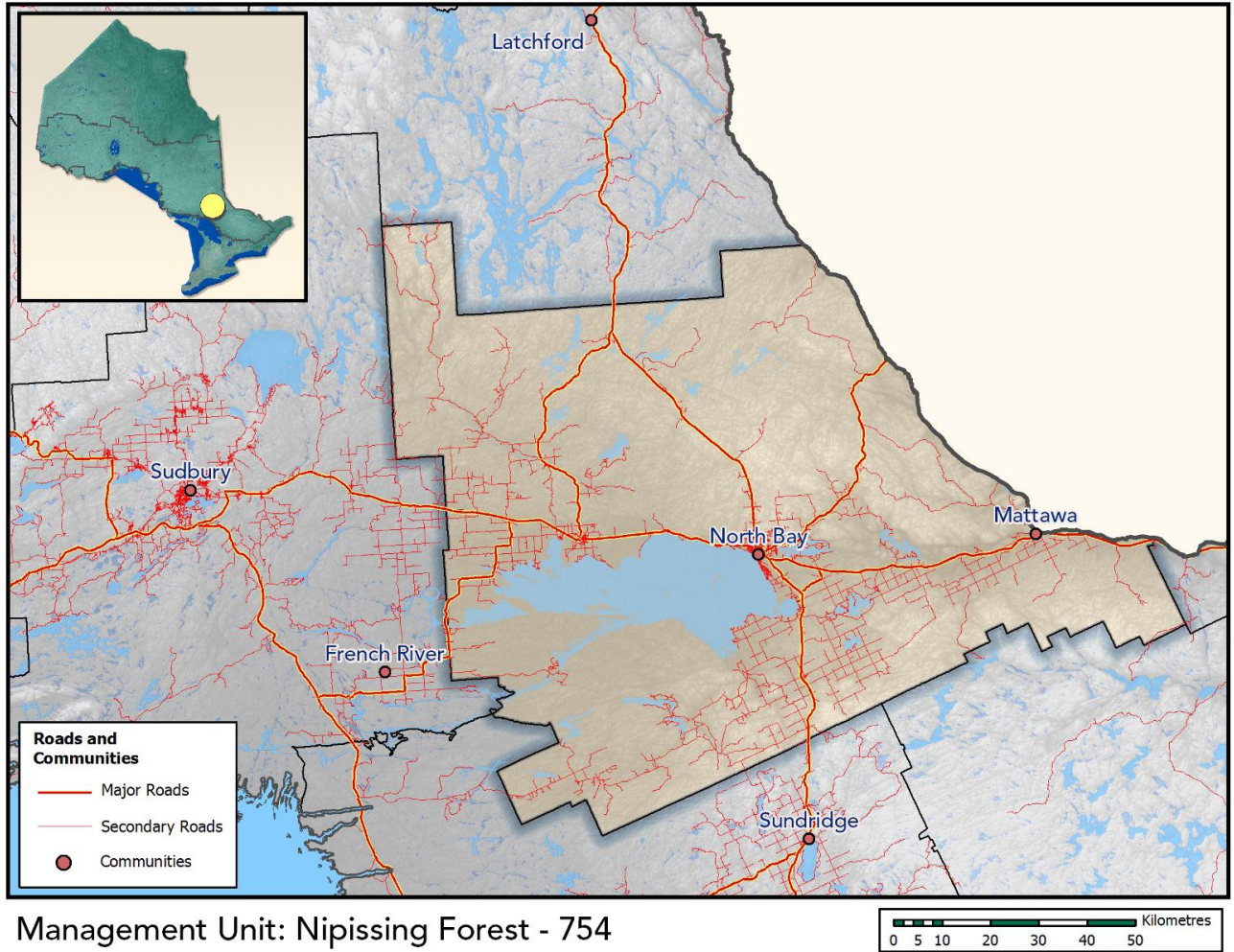
Two major provincial highways, #11 and #17, intersect in the city of North Bay and provide excellent access to all parts of the District. Numerous secondary highways branch off from these two main roads and create an elaborate grid of primary access into all corners of the district. In addition to provincial highways, most townships have a network of municipal and local roads. The logging roads constructed primarily for wood harvesting are maintained largely by logging companies, although OMNR has completed some road maintenance on an annual basis. Some funding for the construction and maintenance of roads on the Forest has been provided by OMNR since 2006.

Figure 1 shows the location of the Nipissing Forest in a regional context.

The total Crown land on the current Forest is 843,546 ha, of which 764,582 ha is managed Crown land and 548,012 ha has been classified as production forest land. Table 1 shows the breakdown of Crown land by land type.

Figure 1. Location of the Nipissing Forest.

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Management Unit: Nipissing Forest - 754

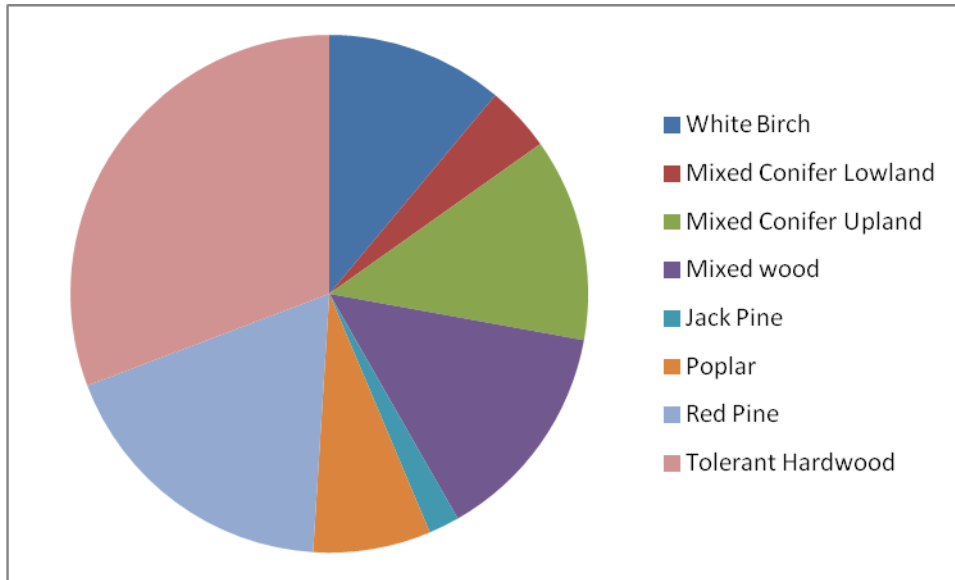
Table 1. Managed Crown Land on the Nipissing Forest by Land Type.

Land Class	Area (ha)
Non-forested	
Water	134,339
Other land	6,760
Forested	
Non-productive	71,174
Protection	4,286
Production	548,012
TOTAL	764,582

Source: FMP-1 2009 Nipissing Forest Management Plan (the numbers do not total perfectly due to rounding errors)

The production forest is managed as a series of forest units, a system that aggregates forest stands with similar species composition that will be managed under common silvicultural systems. The Forest is made up of eight forest types as shown in Figure 2. The largest forest type, occupying 169,941 ha, is Tolerant Hardwood, followed by Red Pine (100,674 ha), Mixed Wood (76,579 ha) and Mixed Conifer Upland (70,110 ha).

Figure 2. Forest Unit Distribution on the Nipissing Forest.



Source: FMP-2 2009 Nipissing Forest Management Plan

The forest resource inventory (FRI) for the Nipissing Forest was developed from 1989 aerial photography. Nipissing Forest Resource Management Inc. or OMNR North Bay District have been responsible for the updates and maintenance of this product since 1998. A completely new inventory for the Forest is scheduled to be available for use in 2014.

Harvest from this Forest supports 15 licensees, five shareholders, four Aboriginal communities, and six independents. A percentage of available harvest is allocated to each licensee. Wood from the Forest partially supplies a total of 26 mills. The Forest is also heavily used for recreational and tourism activities.

3.3 CURRENT ISSUES

The audit team reviewed the current issues facing the Forest as part of the audit planning process. The following items were identified at the pre-audit meeting as items warranting particular consideration during the audit:

- Harvest levels have occurred at around 50% of planned levels for the past 15 years. Red and white pine harvest volumes and prices dropped, which added to this situation.

Predictable impacts would be expected on social and economic objectives and silvicultural objectives in the near term, and ecological objectives over the longer term.

- A windstorm on July 16th, 2006 caused extensive damage across the Forest, requiring major changes to the FMP and resulting in salvage operations which lasted almost two years. There were challenges managing white pine stands after blowdown occurrences.
- There is an expected shortfall in white birch and hard maple sawlog supply into the future, and an expected reduction in volume for most species as a result of the predicted age class gap. The 2009 FMP included a 13% reduction in available harvest area (AHA) from the 2004 FMP level.
- A dispute over access to harvest areas has resulted in a decision to deny use of some provincial highways and municipal roads for access and hauling of timber.
- There are challenges in managing the connectivity of forest landscapes as the area is fragmented by an extensive road system and a long history of timber harvest, recreation, and other development on the Forest.

3.4 SUMMARY OF CONSULTATION AND INPUT TO AUDIT

The auditors distributed 870 surveys, and placed advertisements inviting comments in two local paper as well as web-based versions of the same documents. Members of the Nipissing Local Citizens' Committee (LCC) were interviewed, as were members from each of the First Nations communities with an expressed interest in the Forest. A more detailed summary can be found in Appendix 4.

4.0 AUDIT FINDINGS

This section provides a summary of audit findings for each principle. Detailed discussions for each recommendation are found in Appendix 1.

4.1 COMMITMENT

The independent forest audit protocol requires both the SFL holder and OMNR to have policy statements and operational performance that demonstrate the commitment of the organization to sustainable forest management.

The audit identified that both organizations have clear policies that identify a commitment to the sustainable management of the Nipissing Forest. These documents are available for view by employees, stakeholders, and interested members of the public.

The Nipissing Forest has been certified to the Forest Stewardship Council Standard.

4.2 PUBLIC CONSULTATION AND ABORIGINAL INVOLVEMENT

The Nipissing LCC has been in existence since 1992 and acts as an advisory committee to the District Manager for North Bay District. The LCC is made up of individuals representing a

balance of interests including cottaging, municipalities, the environment, the forest industry, trapping, cultural heritage, tourism, Crown land recreation, angling and hunting, First Nations and Aboriginal groups, prospecting, silvicultural contracting, trail use, independent logging, and the general public. The Nipissing LCC is large (more than 15 members) and attendance at meetings is generally good. The membership of the LCC was reviewed at the commencement of the 2009 forest management planning process. Fourteen LCC members were interviewed as part of the independent forest audit. Most of the members are very keen and highly knowledgeable about resource management issues.

The Nipissing LCC has a very detailed terms of reference that has been regularly updated and revised. The terms of reference is consistent with the requirements of the Forest Management Planning Manual (FMPM).

LCC members are satisfied that all key aspects of forest management planning are brought to the Committee. At the end of each meeting the LCC Chair opens up the floor for anyone to speak their mind on issues. This appears to be a good practice as it allows LCC members to raise issues that might normally be out of their scope but are important to one or several LCC members. By presenting this opportunity at the end of the meeting, it does not prevent the official business of the LCC from being conducted.

During the preparation of the FMP, public consultation opportunities were advertised and provided as required.

Opportunities were provided during the 2009 FMP process for the public to invoke the issue resolution process, and two such requests were made.

The first issue resolution process involved a group of permanent and seasonal residents of the community of Restoule and consisted of two somewhat separate items. The first was the opposition by residents to hauling operations on Highway 534 and Sand Lake Road, two public roads. The second was opposition to a proposed road corridor, referred to as the Porter Road Alternative, that would connect to an existing road known as Hawthorne Drive. With both issues, concern was for public safety and the social impact associated with the hauling operations.

The planning team was of the opinion that the hauling routes were necessary and were the best alternatives to guarantee access to Crown timber intended for harvest in this and subsequent FMPs. One of the access routes would also facilitate access for the Dokis First Nation to harvest in Hardy Township, and could also provide a second means of access for the Dokis community.

Land ownership in and around Restoule is a combination of both Crown and private property. Almost none of the Crown land near Restoule is adjacent to the existing local highway system, which effectively means several thousand hectares of Crown resources can only be accessed via the existing public road systems (such as Hawthorne Drive) or by gaining access rights through private land. The community's concern was highlighted during an Information Center in April 2008 in Restoule.

A second community meeting was agreed to by the planning team, as the community was not convinced that enough effort had been put forth to find alternatives to the extension on

Hawthorne Drive. At this meeting, in July 2008, a comparative analysis of all possible access alternatives was presented by the planning team. The residents of Restoule did not accept the analysis as being balanced and sensitive to the social or public safety concerns that they had previously articulated.

A more comprehensive analysis was provided at a third community meeting and the Porter Lake Route via Hawthorne Drive was identified as having the least overall impact but the highest social impact, primarily due to the safety issues raised by the community. All other options required the crossing of private land, which involves landowner agreement and is, therefore, dependent on landowner cooperation. The assessment of road alternatives was well thought out and the team conducted a very sound analysis. In addition to the route analysis, the Ministry of Transport (MTO) provided a bridge inspection report confirming the structural integrity of the single lane bridge that had to be crossed to reach the Hawthorne Drive extension. The analysis was on par with a small class environmental assessment process and eleven alternatives were examined. The issue resolution process was subsequently invoked in September 2008 by a large number of residents.

During the month of October 2008, the plan author was unable to reach a resolution and indicated to the Acting District Manager that the Stage 2 process should be initiated. In response to the community concerns, the Acting District Manager offered another meeting in November 2008 to attempt to resolve the issue. At least 50 individuals attended this session. On December 11, 2008 the Acting District Manager issued her decision. First, to continue to use the Sand Lake Road to harvest blocks north of Restoule and place timing restrictions on the haul (a ban on hauling from Victoria Day weekend to Labour Day). Second, to use Hawthorne Drive for log hauling (essentially confirming the Porter Lake Alternative), along with a variety of mitigation measures. The Acting District Manager's decision was then appealed by both Tembec and the residents of Restoule. It was appealed by Tembec because of the timing restrictions (for potential environmental and safety concerns). The Regional Director's decision supported the Acting District Manager's decision regarding the use of the Sand Lake Road and timing restrictions. However, the Regional Director's decision deviated from the Acting District Manager's decision in that he directed the planning team to remove the Porter Lake primary road corridor as a hauling route. The Regional Director identified that this decision was dependent on Tembec being able to secure agreement for hauling across private land.

It should be noted that OMNR does not have the authority to restrict or control hauling or travel on public roads. Ontario Ministry of Natural Resources may be able to achieve the seasonal restrictions desired via some other means (e.g., harvest timing restrictions or voluntary compliance). If it was intended that other means were to be used to achieve the restrictions, it would likely have been preferable and more transparent to the public to identify what those other means were. The auditors recommend that OMNR restrict direction provided in issue resolution decisions to that which falls under the auspices of the CFSA. (Recommendation 1)

The decision to refuse the Porter Lake Alternative and, therefore, not use Hawthorne Drive for log hauling was a very popular decision for those residents of Restoule. While this decision was in the Regional Director's prerogative, it was counter to the planning team's recommendation. It was effectively a local win solution where the immediate concerns of the residents trumped the other environmental, economic and social benefits and concerns regarding planning on Crown land. It is in many ways a challenging decision to make as different values are considered

(e.g., costs, environmental effects, concerns over public safety) that are not directly comparable. Hauling logs through a small community is not a unique phenomenon in Northern Ontario.

At the time of the audit, Tembec had still not obtained access via the private land for the proposed road. Everyone appears to hope that Tembec can obtain this permission and that a new access point could be provided.

A second issue resolution process was invoked by a logger with a small harvest share who wanted to control harvest in a larger area beyond his share. The situation was a licensing issue and, as the District Manager noted in her decision, out of the scope of the forest management planning process.

Five First Nations and Aboriginal communities have traditional territories and interests within the Nipissing Forest. The five are: Dokis First Nation, Nipissing First Nation, Temagami First Nation/Teme-Augama Anishnabai, and the Antoine and Mattawa/North Bay Algonquin communities. Dokis First Nation, located along the French River, has general interests in the southwestern portion of the Forest. Nipissing First Nation is located on the north shore of Lake Nipissing. Temagami First Nation has an interest in the north end of the Nipissing Forest. The Antoine and Mattawa/North Bay Algonquins are recognized Algonquin communities, based in and near Mattawa, that are part of the Algonquin land claim negotiations and have an interest in the eastern portion of the Forest.

The audit team conducted in-person interviews with all of the First Nation and Aboriginal communities except for Temagami, which was in the process of changing forestry managers at the time of the audit.

During the preparation of the 2009 FMP, the primary forms of consultation with the First Nation and Aboriginal communities were participation on the planning team and participation in the Aboriginal Working Group established in the District. All the First Nation and Aboriginal communities indicated that sitting on the planning team was a good avenue for their participation. There was also a general indication that the Aboriginal Working Group was an effective instrument to discuss matters pertinent to the First Nation communities. The First Nation and Aboriginal communities were offered separate native consultation processes but these were declined by the communities. Based on the interviews with the First Nation and Aboriginal leaders, members with interests or concerns with respect to forest management can raise them with their leadership, who then address their issues with the planning team or with the Aboriginal Working Group. Participation by NFRM in the Aboriginal Working Group and in working with the First Nations appears to be very good. Nipissing Forest Resource Management Inc. is considered accessible and generally willing to work through issues with the communities.

Aboriginal values of interest have been collected and protected on the Forest. In a couple of the communities, some of the values were never field-truthed and, therefore, their precise locations are somewhat uncertain. However, the areas are generally known and this uncertainty and the process to handle it is documented in the FMP and addressed in the compliance plan. As such, a good process is in place at the operational level to ensure the values are protected and mitigation measures provided.

The Aboriginal Working Group set up in the District is a particularly useful tool for First Nations involvement when the plan formulation cycle has been completed. It represents an ongoing opportunity for the First Nation and Aboriginal communities to stay involved in forest management issues. This is particularly important now that FMPs are on a ten-year cycle.

Aboriginal Background Information Reports were prepared for the various First Nation and Aboriginal communities. The reports provide a good summary of the communities' interests, histories, and socio-economic characteristics. In particular, the Aboriginal Background Information Reports for the Antoine Algonquins and Dokis First Nation were very detailed.

Economic opportunities have been provided to the First Nation and Aboriginal communities on the Forest. The First Nations and Aboriginal communities have about 8% of the total harvest share. Dokis First Nation has a small harvest share (1.8% of the AHA) on the Nipissing Forest, which it is not currently using. While intending to keep its harvest share, Dokis has permitted other First Nation communities to harvest its area share on the Nipissing Forest at present. Nipissing First Nation also has an area share (3% of the AHA) and has historically logged on the Forest. Nipissing First Nation also has had some silvicultural opportunities. Both Antoine (1.1% of the AHA) and the North Bay Algonquins (2% of the AHA) harvest their area shares on the Forest and indicated a desire to obtain a greater share, whether it be temporarily or permanently. Both communities have cut their volumes despite weak market conditions. Nipissing Forest Resource Management Inc. has indicated that it does have mechanisms in place within the Company to provide increased harvest opportunities if other companies are not utilizing their share. This process is typically activated in the middle of an FMP period. The audit team encourages NFRM to provide these opportunities if available harvest areas are not going to be harvested.

Aboriginal peoples were provided with opportunities to achieve more equal participation in the benefits provided through forest management planning. There is an interest in ensuring those opportunities are continually provided and, in the case of a couple of communities, enhanced.

4.3 FOREST MANAGEMENT PLANNING

The preparation of the 2009-2029 FMP met the administrative and procedural requirements of the planning process, and was approved on March 25, 2009. The planning team worked well, in most regards, and dealt with the Restoule issue resolution with reasonable efficiency. The planning team was insightful in conducting its socio-economic analysis and NFRM has done a very effective job of securing resource stewardship agreements with tourist operators on the Forest. Other aspects of planning, such as values identification, endangered species management, and AOC implementation were also very well done.

The audit team identified several recommendations concerning the 2009 FMP. The plan is based on an old inventory; it includes a large number of management objectives, some of which are out of scope, redundant, or immeasurable; and, its projections for future revenues are based on a utilization level that has never been achieved on this Forest. Further, OMNR has included in its list of required alterations to the plan author a requirement to restrict access in a manner that is, in the opinion of the audit team, unenforceable. Finally, OMNR District review and approval of plan amendments is not as consistent or predictable as would be expected.

The FRI for the Nipissing Forest is based on 1989 photography and, although it has been updated in response to forest management operations and natural depletions, it is currently significantly deficient. This situation has a significant impact on the FMP. The forest inventory is the basis for describing and determining forest cover, and for all estimates of AHAs, volumes of timber, habitat types, forest diversity, and carbon content. The inventory was designed to be accurate at a management unit level for forest working groups; it was not designed for stand level accuracy. An examination of the FRI found it to be accurate only 52% of the time at correctly determining forest unit (the basis for the plan).

The utility of the inventory for determining such derived values as wildlife habitat is unknown, especially when such values are then projected over the long time horizons used in the plans. The way such data is used leads to a presentation of indicators and forecasts which appear very precise but lack the accuracy needed for planning. The auditors have recommended that corporate OMNR ensures a new inventory is delivered as soon as possible. (Recommendation 2)

The auditors accept that the FMP has been developed with the best data available, and acknowledge that a new FRI has been initiated and is expected to be available to forest managers by 2014. It is probable that the new, more accurate FRI may provide better data for long term forecasting, and that the forecasts will be significantly different than those based on the old inventory. The Company and OMNR will need to develop a strategy to assess the influence of changes noted in the new inventory on management objectives.

The Company and OMNR have sensibly compensated for the near term deficiencies in the FRI by conducting direct field inspections for all management activities. This is a relatively intensive practice in Ontario Crown forest management. The result is an operational program that considers the prescriptions planned based on the inventory but is reviewed, confirmed, and/or corrected by professional staff to ensure the actual operations match the forest on the ground. This is a good practice which effectively minimizes the opportunity for FRI inaccuracies to lead to unacceptable consequences in the near to medium term.

The 2009 FMP includes 42 objectives which are to be monitored and evaluated against 62 indicators. The Desired Forest and Benefits Workshop drew input from a variety of stakeholders and LCC members who helped identify several of these objectives. The FMP process requirements were met, and the workshop clearly was successful in identifying a vision of the future forest from a number of divergent perspectives. However, several of the objectives in the FMP, which were generated in this workshop, are beyond the scope of a forest management plan, while several more are of marginal utility.

Forest management planning in Ontario is an inclusive and complicated process. However, identifying an unnecessarily large number of objectives will, in all probability, result in an increase in effort to support objectives that are best addressed by other agencies, not accurately measurable, or are redundant. In addition, management objectives are meant of focus management direction; it would appear to be difficult to focus on 42 objectives simultaneously. The auditors have recommended that the objectives be reviewed to ensure they are measurable, predictable, relevant, understandable, valid, and feasible within the scope of forest management on Crown land (Recommendation 3). Further, the auditors recommend that OMNR ensure that all objectives in an FMP are within the scope of the CFS. The auditors

confirmed that the objectives in the plan included those which are required and those thought necessary for assessing the sustainability of the Forest.

The auditors do not envisage a revisiting of the Long Term Management Direction of the current plan as part of a corrective action to this recommendation. However, consolidation of objectives with common indicators and identification of objectives that fall outside the scope of forest management planning should allow streamlining of the objective management process in the next plan or plan revision.

The current forest condition is the basis for the development of management strategies and decisions in the 2009 FMP. These include: landscape pattern or forest diversity indices; habitat for selected wildlife species; landscape processes; and a description of fish and wildlife resources, existing roads, and land uses. The auditors reviewed the current forest condition as described in the 2009 FMP, with a focus on aspects of forest condition that were regarded as most challenging. These included:

- Approach to ecologically evaluating spatial old growth on the landscape
- Approach to identifying red-shouldered hawk levels on the Forest
- Objectives and indicators related to selected wildlife species

Planning for the creation of disturbance patches over 500 ha in size in a highly populated forest such as the Nipissing Forest is difficult to achieve because of public concerns about logging. A review of the process for setting the pattern indicates the planning team is bringing more of the Forest towards the template value, especially in the 500 ha class.

Integration of the old growth requirements was also challenging. The planning team was seeking level direction from Regional OMNR staff in late 2007 and, specifically, some guidance about where exactly old growth was located, how far apart patches can be to be considered one patch, and how many old trees they must contain. Shortly after the planning team identified the issue, they developed enough guidance, from their own examination of the existing policy or from Regional direction, to proceed and by January of 2008 they produced the Old Growth Management Strategy for the Nipissing Forest. Based on that direction, the outcome in the FMP is a comprehensive group of objectives regarding old growth. The FMP identified all late seral stage white and red pine stands as significant, due to their declines from historical levels, as well as undisturbed late seral stage tolerant hardwood forests and all significant hemlock forest stands.

The FMPM requires that species currently listed as species-at-risk in Ontario be included in the FMP process if they are documented on the Forest. The planning team did a good job of including appropriate actions to address species-at-risk in the FMP, even though the *Endangered Species Act* (Revised Statutes of Ontario 2007) was still early in its implementation. At the time of the development of the plan, species-at-risk included the red-shouldered hawk, southern flying squirrel, and Blanding's turtle, and a long list of other species that are not directly affected by forestry operations. Both red-shouldered hawk and Blanding's turtle will be discussed in detail here.

The effort to define habitat requirements for red-shouldered hawk was impressive given the difficulty of forecasting habitat a spatially for a species that selects its habitat with several spatial criteria, including nearness of road networks, buildings, open meadows, and water bodies.

Ironically, if SFMM is set to constrain harvest for red-shouldered hawk, it tends to over-allocate the desired condition and not leave room for socio-economic considerations (like logging). The write up in the FMP is complicated, at once trying to force a decision criterion (65% of the natural benchmark) into SFMM, while explaining SFMM inadequacies. The appropriate avenue for the planning team was to seek a more spatial modeling approach, which they did. This was done using the Ontario Wildlife Habitat Analysis Model (OWHAM), although even this was of limited application. According to the analysis package in the FMP, OWHAM added human structural constraints to the habitat forecast, thus helping to make a more realistic estimate.

In the end, the opinion of the planning team, with the support of the LCC, Regional reviewers, and public opinion, provided a reasonable basis for a decision about the level of red-shouldered hawk habitat.

The *Endangered Species Act* dictates that Blanding's turtle will become a species with a habitat regulation in 2013. Currently, it receives "species protection", a more general level of protection for individual animals. There are currently no sites where forest operations are occurring near known habitat for Blanding's turtle. Habitat protection will require a more detailed definition but, in practical terms, the best measure of habitat will be the occurrence of the species. Implementation of the *Endangered Species Act* in other SFLs in central Ontario has been impeded by lack of habitat assessments, which causes delays in forest operations. To ensure that proper planning is now occurring, the audit team examined the current state of habitat assessment for the Nipissing Forest. In this District, surveys are proceeding far enough in advance of the forest operations that there should be no overlap or conflict between the two activities. Eventually, there may be a need for some modifications to block layout, but this should be mitigated by enough lead time if an amendment is required.

Species-at-risk training was provided by OMNR at the Spring training session held by the Company for woodlands staff for all companies involved over the last two years. Ontario Ministry of Natural Resources has been very proactive in attempting to locate species-at-risk in the District, despite the fact that some are inconspicuous and difficult to identify. This is part of the FMP strategy for managing species-at-risk.

The audit team reviewed the values maps and input to values maps through public consultation. The audit team followed the updates during the development of the 2009 plan, and found information was accurate and made available to the plan author in a timely manner by OMNR. Typically, stream locations and nest locations are the most susceptible to change. The values maps, as transferred to annual work schedule (AWS) mapping, are readily available in PDF format, and suitable for review by the general public, with minimal technology. It is noted that land use permit locations are particularly visible. Both the Company and OMNR staff are available for reviewing values with the public.

The number of updates of the values inventory and the AWS mapping is a significant effort on the part of the Company. In practice, the terrain is complex with many water courses and has relatively continuous tree cover typical of central Ontario. This leads to difficulties in inventory of stream locations, necessitating field visits during timber cruising, reconnaissance, tree marking, road layout, and block layout. In short, the number of actual visits to the block in this Forest (and adjacent SFLs) is a hallmark of careful management and more intensive

management of values. The changes are necessary, time consuming, and are well managed. Updating of the values is part of the process and OMNR is able to keep up with the volume.

Tourism values of interest are well addressed in the Nipissing Forest. Thirty-one resource stewardship agreements have been signed by NFRM with tourism operators in the Forest. This is the largest number in the province by a significant margin. While these agreements are not necessarily the only way to address mutual issues of concern between the forest and tourism industries, they are an indication of the willingness of both industries to work together to resolve potentially conflicting issues on the Forest. Nipissing Forest Resource Management Inc. should be congratulated on making such a strong effort.

The audit team is required to review the planning that occurs for specific AOCs on the Forest. This is to determine if the information was adequate for protection and how well the values and prescriptions were documented. The term of this audit covers the development of the 2009 FMP only; this means that the new *Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales* (Stand and Site Guide), which came into effect in March 2010, was not available as a source of direction for most site-level ecological AOC prescriptions in the 2009 FMP.

As noted above, a highlight of the Nipissing Forest is the detailed prescriptions related to resource stewardship agreements in areas near tourism facilities. In the current plan there are 45 prescriptions; some are generic but many are specific to particular resorts. Audit team interviews with resort owners indicated that the prescriptions were suitable. The Company maintains close contact with these business owners, and other users of tourism or recreational values on the Forest.

Some roads near resorts have been buffered by modified harvest areas of 30 m. These are aesthetic considerations and are supported by the LCC and the public. The restriction is very cautious in a forest that is often harvested by shelterwood and selection systems. As part of the designation of these AOCs, the Company should make it clear to all resource stewardship agreement holders and recreational stakeholders that wood currently in these AOC reserves along access roads may become available again for cutting in the near future following green-up of adjacent stands. This is the common practice in most SFLs where road buffers are applied. It is not clear how this can be recognized within the context of the FMP process.

High Potential Cultural Heritage (HPCH) AOCs have been much reduced in size due to an improved and more refined provincial modelling approach for reviewing culturally significant terrain. The large size of the HPCHs in the previous plan was particularly problematic for NFRM because the Nipissing Forest contains many historically significant waterways. The audit team noted that the Company was very proactive in engaging OMNR about this issue. The Company has been directly involved in the review of the model that selects HPCH areas by having a representative on the provincial task team. The Company also has a high standard for review of HPCH AOCs.

There were other good examples of careful consideration of AOC prescriptions. Auditors reviewed the detailed discussion of AOCs that apply along park boundaries. The presentation of alternatives for consideration was thorough and fully considered by the planning team.

The audit team visited an area with two Self Sustaining Trout Lakes (SSTL) based on a concern that access had been increased in the area due to recent harvesting. For the 2004 plan there was no road building restriction in place around the SSTL AOCs. The new plan has increased the road building restrictions on operational roads from Self Sustaining Trout Lakes. The concern with lakes of this type is that increasing access will, over time, allow overfishing to occur as the human population increases and more people use the lake. Possibly more significant is the immediate risk from invasive fish species brought by uninformed anglers.

The two lakes under consideration (Green Lake and Sure Catch Lake) were not easily accessible prior to the recent harvesting activities. A rough trail has been in place for some time that accessed both lakes and was passable for pickup trucks. The issue raised during the audit was about improvements that were made to the road during the recent harvest. As well, additional roads were built to within 200 m of the lakes in several locations (see Figure 3). These roads were in compliance with the 2004 FMP. However, based on new information and the best available science, the 2009 planning team developed an SSTL AOC prescription for the 2009 plan requiring that roads must be "...decommissioned following operations as per the direction of the MNR Biologist."

Since the development of the 2009 plan, further direction has been provided by the OMNR Northeast Region which clarifies the latitude that planning teams have under the new Stand and Site Guide. It proposes three zones with varying levels of access allowed. As well, it suggests that the general best practice for an SSTL area is that "...existing roads within the AOC will be decommissioned provided it is consistent with the Road Use Management Strategy." The audit team notes that there is no existing Road Use Management Strategy for North Bay District. In the absence of a plan, a more precautionary approach may be appropriate.

The audit team is recommending that the AOC prescription for all SSTLs be amended in a manner consistent with Regional direction (Recommendation 4). This should include wording stipulating that no road maintenance be allowed on existing roads within Zone 1 and 2, except for safety reasons. The intent is that after operations, existing roads should be in a state equivalent to their original condition.

The audit team is suggesting, specifically for Green Lake and Sure Catch Lakes, that OMNR and the Company seek an opportunity to return the access to a condition similar to its 2004 (pre-harvest) condition.

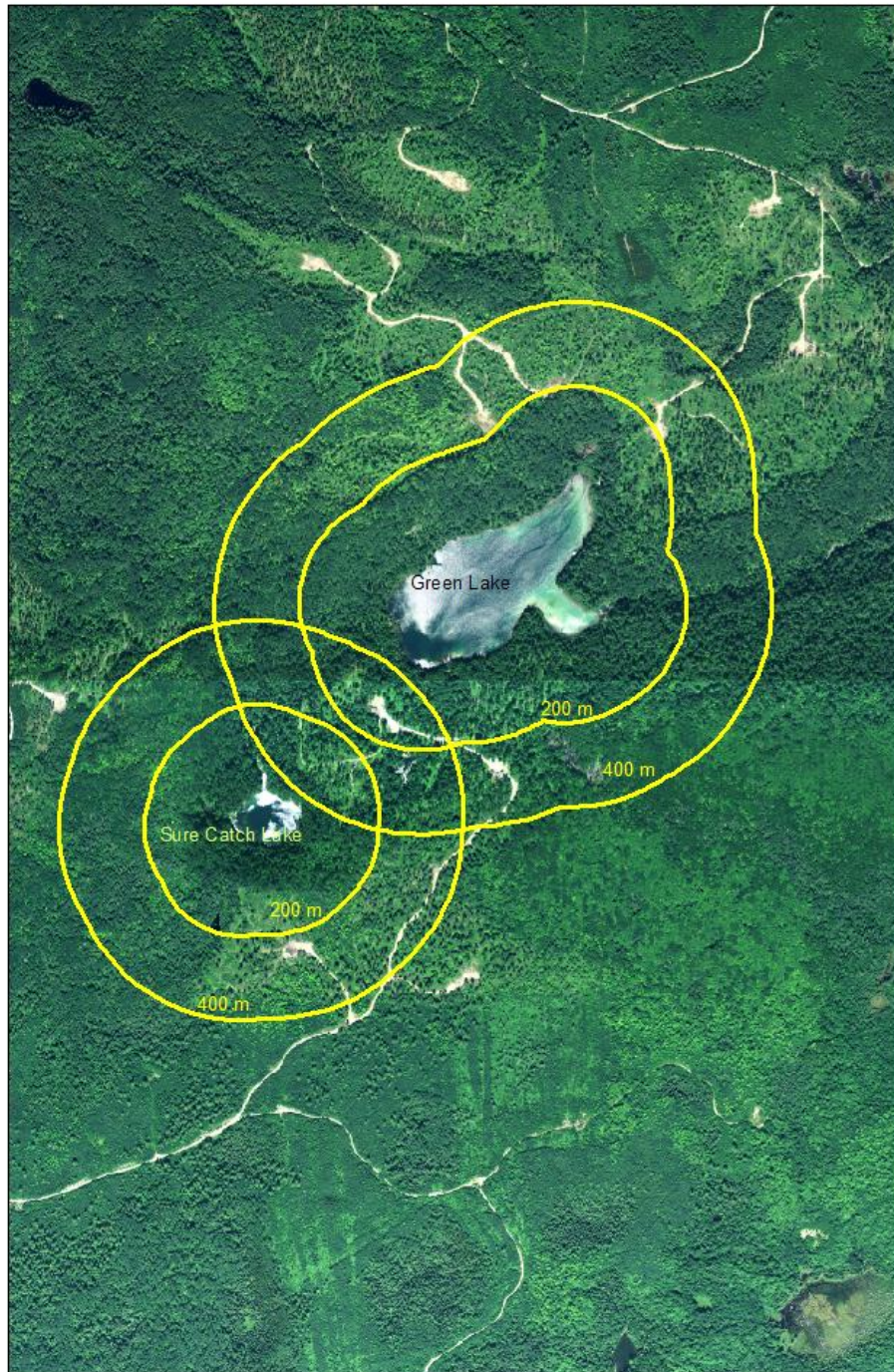


Figure 3. Road Locations Relative to Sure Catch Lake and Green Lake on the Nipissing Forest.

Overall, the audit team found adequate information was available for AOC prescriptions. Planning team minutes were detailed and helpful in following the discussion and prescriptions were well documented in several places in the FMP. Reasonable alternatives were provided in the supplementary documentation. Where public comment was required, it was taken into consideration. Mapping was available and accurate, noting that there were a large number of changes due to a continuous stream of new values information.

The auditors noted 633 required alterations issued by OMNR to the plan authors. While this is not an unusual number, and most were within the purview of plan reviewers and undoubtedly helpful to the plan author, two required alterations were inserted to address access issues in the plan. One such alteration went beyond the scope of the FMP and the CFSA by restricting use of a public highway. This resulted in changes to road use strategies which will be unenforceable. One other alteration requires the “forest industry” to undertake a survey of a public road, which is again beyond the scope of the CFSA. The auditors have recommended that required alterations issued by FMP reviewers be restricted to those that fall within the scope of the CFSA. (Recommendation 5)

The auditors found the OMNR District office was inconsistent in its processing of amendments. Approvals for apparently similar amendments took between one day and six months. A recommendation has been issued to address this situation. (Recommendation 6)

4.4 PLAN ASSESSMENT AND IMPLEMENTATION

Harvest

The auditors inspected harvest sites that included 20% of the area harvested over the audit period. Operations from all silvicultural systems were examined.

A total of 21,845 ha were harvested on the Nipissing Forest between 2004-2009, which represents 41% of the planned harvest area. The volume harvested was 51% of that planned. Overall, the shortfalls in harvest target achievement reflect continued weak markets for forest products, although area by-passed due to unmerchantable stand conditions or logistical issues also contributed and the harvest level for the audit term.

The harvest systems utilized most predominantly on the Nipissing Forest are the clearcut and shelterwood systems. The selection system is employed only on a small proportion of the harvest. Of the 21,845 ha actually harvested over the 2004-2009 period, 50% was managed under the shelterwood system, 47% under the clearcut system, and 3% under the selection system.

Tree marking is a critical aspect of implementing the partial cutting systems for seed-tree cuts under the clearcutting system, and for all commercial thinning. All marking is carried out prior to harvest. Nipissing Forest Resource Management Inc. retains certified tree markers who mark trees for removal or retention, based on direction provided by the Forest Operations Prescription (FOP) and in accordance with NFRM’s tree marking and operational guidelines. Tree markers are also responsible for marking AOC reserves and making adjustments to

prescriptions as needed when unmapped values are encountered, or when site conditions and stand structure warrant an adjustment to the harvest prescription.

Observations at all harvest locations visited by the audit team confirmed that utilization and harvesting practices were generally good to excellent. While there were some instances of non-compliance found during site visits, they appeared to be minor and isolated cases.

Harvest operations were broadly consistent with the FOPs and were appropriate for the specific site conditions, species, and stand structures that were encountered. The FOPs are comprehensive yet provide sufficient flexibility in the event that stand conditions are not compatible with the preferred FOP. The FOPs are all certified by an RPF.

Salvage harvesting took place follow a major windstorm event in July, 2006. This effort was conducted with good cooperation between NFRM and OMNR North Bay District to utilize damaged timber that was accessible and to renew the affected areas (although the FMP amendment process was lengthier than what is normally expected under such circumstances). Nipissing Forest Resource Management Inc. aggressively sought to salvage and renew the damaged areas and executed the program in an excellent manner. Both organizations are to be commended for this accomplishment.

Areas of Concern

There are 100 different AOC prescriptions for the Nipissing Forest (Table FMP 14) covering a wide range of values. The information needs for local application of appropriate AOCs is important.

There were no exceptions to any of the implementation manuals or guidelines used to develop the AOC prescriptions for the 2009 plan that applied to non-timber values (there were two silvicultural exceptions in the FMP). The audit team viewed a large number of AOC boundaries and found them appropriately located and clearly marked. Overall, there was an appropriate assignment of values protection in the 2009 FMP. It is noted again that using the Stand and Site Guide was not a requirement for this plan.

The stream classification system is not fulfilling its purpose. Intermittent streams were incorrectly identified on operational maps as permanent and vice versa. The significance of this finding is mitigated by the fact that the actual installations of water crossings were completed effectively in all cases observed. Further, the Stand and Site Guide, which will be implemented in the near future, will provide specific direction for water crossings. Given the good performance observed in the field and the imminent implementation of new guidance, the auditors concluded a recommendation to correct an administrative procedure was not warranted.

The audit team also followed the system for updating AOCs in seven separate examples, six streams and one nest site. The use of the Nipissing Forest Values/AOC Updating and Approval Form has streamlined the flow of information from the field staff to the appropriate OMNR and Company geographic information system (GIS) staff. Other than some filing issues during the field visit, the forms were shown to be simple and effective. This further mitigates the concern about erroneous stream classifications in the field. Evidence shows the Company is making a

good effort to update the classifications. Field inspections showed that even small sections of headwater streams were updated if they were located in operations. This was a good practice.

For other AOC information needs, the Company is proactive. For example, they readily agree to cultural heritage assessments, opting for either stage 2 or stage 4 assessments as required. As well, routine meetings between the Company and tourism operators on the forest ensure information about these economic interests is up to date.

Renewal

There were 20,310 ha regenerated during the 2004-2009 term, which represents 35% of the planned renewal program of 57,970 ha over the same period. Natural renewal of 14,580 ha comprises 72% of the total renewal program. The planting program (4,980 ha) was well below the planned level of 11,180 ha. This is reasonably consistent with the harvesting level of achievement over the same period (41%).

The natural regeneration portion of the renewal program includes use of the shelterwood system, selection, and clear cut systems.

The shelterwood system is applied to mid-tolerant species, such as white pine and yellow birch, and relies primarily on natural regeneration. Overstory crop trees are progressively removed in a series of harvests for the purpose of recruiting natural regeneration under the shelter of the residual trees. Artificial regeneration (e.g., planting) treatments can be used to convert stands to other forest units, influence stand composition, or be applied should inadequate natural regeneration be expected (due to a poor cone crop, for example). Scarification is often applied to expose and mix mineral soil and provide an adequate seedbed. The shelterwood system was used on about 50% of the area harvested on the Forest during the audit term.

The selection system is applied to good quality, uneven-aged stands dominated by shade tolerant species such as hard maple and beech. The aim is to maintain an ideal stand structure containing residual stems with a variety of diameter sizes while improving growing stock quality by removing poorer quality and defective trees during the harvest operation. Over the 2004-2009 term, the selection system was only applied to about 3% of the harvest area, which is considerably less than the 22% level planned. Company staff have discovered that many of the stands initially envisioned for selection system management lack sufficient quality stems and stocking to qualify for this form of silviculture.

Shade intolerant species, such as poplar and white birch, are managed under the clearcut system. Most of the overstory is removed in a single harvest operation. Regeneration may be through natural methods, or sites may be artificially renewed (e.g., planted with container stock or seeded). Clearcutting was applied to 47% of the area harvested on the Forest.

The audit team visited numerous examples of silviculture treatment packages at various stages of implementation on the ground. Audit team members checked shelterwood stands to ensure, for example, that adequate residual forest cover was being maintained by measuring basal area or estimating crown closure, and observing the residual stand structure, residual tree form, and quality. Similar observations and checks were made in the stands being managed under the

selection system. The auditors were satisfied that logging damage is being minimized to residual trees and to natural regeneration that was becoming established under all of the silviculture systems. Removal and retention of trees are generally in conformance with the tree marking. There were only few occasions where trees that had been marked for removal had remained standing. Application of the renewal prescriptions in the field was in conformance with the silvicultural ground rules (SGRs) and the treatments being applied appear to be effective and appropriate on the renewal sites that were visited. The prescribed practices for each site and the desired future forest unit were suitable, consistent with the FOPs, and should maintain forest productivity. The auditors witnessed many good examples of successful natural and artificial renewal establishment, such as the renewal work being employed following the white pine seeding cuts (scarification for natural regeneration and planting) and the yellow birch shelterwood effort using scarification, which appear very promising.

The auditors acknowledge the efforts made by NFRM to address the renewal concerns identified in the 2006 independent forest audit. For example, mechanical and chemical site preparation is being used judiciously to better control competition and improve mineral soil exposure, thereby increasing desired species survival. As well, sturdier stock is being used in the planting operations to improve survival, and planting is being done at higher densities to ensure adequate stocking. Overall, the auditors witnessed an impressive program.

Tree improvement activities on the Nipissing Forest are primarily conducted on a site known as the Gurd Tree Improvement Area and Gurd Research and Demonstration Area, located in Gurd Township approximately 60 km south of North Bay. The research area is comprised of 200 ha of land that has a long history of forestry research dating back to the mid-1960s.

There is a long term strategy for managing this area. Funding flows through the Forestry Research Partnership, which is a collaborative effort between the OMNR, Canadian Forest Service, Canadian Ecology Centre, and Tembec Industries Inc. Many of the activities on the site are conducted under the direction of NFRM.

There are 28 various tree improvement projects, trials, and experiments established on the Gurd site at various stages of management. A summary of the projects was produced in 2001 and updated in 2008. Of interest to the auditors were a number of trials such as a natural white spruce seed production area; white pine, red pine, and white spruce clonal orchards; and a red spruce seed production area which could be directly beneficial to the renewal program on the Nipissing Forest. Company staff report that none of the seed used for artificial renewal on the Forest is derived from improved sources. Evidently, there is insufficient quality and quantity of improved seed being generated from these sites to be used operationally on the forest.

The 2004 and 2009 FMPs mention another tree improvement site located on the Nipissing Forest known as the Mattawa White Pine Clonal Seed Orchard. Although considerable effort was made to establish this orchard, it appears that little activity has taken place on the site since the late 1990s.

The auditors encourage that some efforts be made to protect the substantial initial investment made in establishing these facilities. Such efforts could potentially facilitate future cone collection for a variety of species, with the resulting improved seed being used to replace the general collection seed NFRM currently maintains in its inventory. (Recommendation 7)

The auditors inspected the McConnell Lakes area, comprised of deep, coarse sandy soils, where the renewal prescription had been changed to allow natural renewal rather than making the effort to plant or seed these sites to white or red pine. Lack of funds was cited as one reason for not restoring these sites, although there is also local opposition to herbicide use which could also constrain white or red pine renewal. The sites are now returning to a mixedwood condition. The auditors recognize that financing can place constraints on the renewal program. However, given that one of the objectives in the 2009 FMP is to restore white pine on the landscape (Management Objective #6), alternative or additional funding sources could be sought to assist in efforts to restore white and red pine on sites that are ideally suited for growing these species. The auditors recommend that NFRM seek out such additional funding. (Recommendation 8)

Tending activities occurred on 6,945 ha from 2004 to 2009, which was comprised of 797 ha of manual tending, 844 ha of aerial chemical tending, 1,969 ha of ground chemical tending, 3,145 ha of spacing/thinning in even-aged stands, and 190 ha of stand improvement cutting in uneven-aged managed stands.

All of the tending achievements, with the exception of ground chemical application, fell short of NFRM's planned program. The levels were generally consistent with renewal and harvest levels.

The Company has recently deployed a more rigorous monitoring system to determine if tending treatments are warranted in renewing stands. Both artificial and natural renewal areas are inspected post-treatment by NFRM staff to assess their status and determine if further follow-up treatments, such as tending to control unwanted competition, are required. Recommendations for follow-up treatment usually originate from these post-harvest and plantation survival assessment observations, which are formally documented. Assessments appear to have been carried out conscientiously, as areas that had been designated and undergone tending treatments were indeed in need of treatment.

The audit team observed approximately 18% of areas that had been tended in the last five years. Appropriate AOCs were established to protect non-timber values. Much of the renewal in the stands that were inspected exhibited good growth and little sign of suppression. Good competition control and good coverage was evident in nearly all of the conifer plantations and conifer renewal in shelterwood areas where manual/chemical tending treatments had been applied. In general, the audit team witnessed an effective tending program.

The Company's use of chemical tending has increased during the audit term to address competition and regeneration effectiveness issues expressed in the 2006 independent forest audit. Efforts to treat backlog renewal areas (e.g., XYZ Lands), and return them to the productive landbase, have been more intensive as has been the overall objective of improving the success of the renewal program. The Company is aware of the public sensitivities around chemical applications and has recently released an Integrated Vegetation Management Strategy to rationalize and assist in identifying the circumstances under which herbicide treatments will be judiciously applied.

Access

The Nipissing Forest benefits from a very well-developed access infrastructure since its boundaries encompass parts of several provincial highways (including Highways 11, 17, 64), numerous secondary highways, other municipal and township road systems, and many concession roads that interconnect with these highway/road systems. There is a long history of road development in the area related to activities other than forestry, such as agriculture and mining. Although the existing level of access is relatively high, there is still a need to construct access to the more remote portions of the Forest. There was 41.6 km of planned primary or branch road construction for the 2004 to 2009 period and 82.9 km planned between 2009 and 2014.

New roads are normally constructed and maintained by the overlapping licensees. Water crossing locations are approved by, and submitted to, OMNR by the overlapping licensees for review and approval prior to installation. The overlapping licensees are also responsible for maintaining and decommissioning (if necessary) the roads that they construct. New roads constructed by the forest industry from 2005/2006 to the end of 2009 are also considered to be the responsibility of the forest industry. North Bay District now signs memoranda of understanding with the licensees for the installation of water crossings. Ontario Ministry of Natural Resources bears responsibility for maintaining many of the existing roads on the Forest, many of which were in place when the SFL was signed. There are also a number of cases where OMNR and NFRM share responsibilities for existing roads. Maintenance responsibilities for existing roads on Crown lands are listed in the 2009 FMP. Annual monitoring of these roads and water crossings commences after the spring freshet.

The audit team was satisfied that construction practices for new roads were generally good to excellent. Care was taken to minimize environmental impacts and road rights-of-way were constructed within the maximum allowances. Sufficient cross-culverts were being installed to alleviate drainage issues. Grading practices were generally good, although there were a few occasions observed where improvements were warranted to avoid creating “false ditches” along road edges. Such “false ditching” can lead to premature erosion and channelling of runoff into watercourses.

One issue of concern that emerged during the audit was public safety on the McConnell Lakes Road, which had been inspected by the auditors during the field visit. The McConnell Lakes area is a popular Crown land camping and day-use area among local recreationists and receives heavy hunting, fishing, and tourism use. The area contains a complex of 35 lakes that is described as one of the most popular recreation areas in the North Bay District. The roads in the area can receive considerable traffic. The auditors found certain locations within the main road network where visibility was impaired by brush growing along the roadside. Increased signage would have been helpful to notify drivers about upcoming road hazards, such as sharp curves, and advise them to slow down or keep right.

It is understood that responsibility for the McConnell Lakes Road system is shared between OMNR and NFRM. The auditors recommend that both organizations work cooperatively to ascertain probable safety hazards in the road system that could benefit with increased signage and to take the necessary remedial measures to improve visibility where it has become impaired due to excessive vegetation along the roadside. (Recommendation 9)

North Bay District has yet to complete action item #25.1 from the status report that was approved in response to the 2006 independent forest audit report. In this action item, the District committed to evaluate and establish priorities for road and water crossing maintenance for which OMNR is responsible. One of the strategies proposed for conducting the road maintenance was through partnership agreements for roads with shared responsibilities with other stakeholders. Development of the partnership agreements has been put on hold. The auditors would strongly encourage OMNR to complete this action item which will ensure that the limited road maintenance funding available through OMNR's budgeting process is directed to the roads with the highest maintenance priorities.

Another concern brought to the auditors' attention related to the procedures that must be followed in obtaining approvals for constructing water crossings as described in the Protocol for the Review of Water Crossings Proposed Through the Forest Management Planning Process. Interviews with OMNR and NFRM staff disclosed that Company staff are not always providing the necessary information to OMNR with sufficient lead time (i.e., two years) to allow for timely evaluation of the proposed crossing. The auditors share the concern regarding these delays, but view the situation as more of an administrative matter than a sustainability issue. Water crossing approvals are being delayed or sought on short notice. There are no reported issues with crossings being constructed without the proper approvals in place. The Company is encouraged to improve its planning effort in this regard by ensuring that water crossing proposals are submitted in accordance with the requirements of the protocol.

4.5 SYSTEM SUPPORT

Nipissing Forest Resource Management Inc. is certified by the Forest Stewardship Council. The auditors have verified compliance to the human resources requirements of the Independent Forest Audit Process and Protocol. This requires that awareness, education, and training programs are in place to ensure general knowledge as well as knowledge specific to an individual's responsibilities in the sustainable forest management system.

Document management and control was examined for both OMNR and the Company. Ontario Ministry of Natural Resources has a significant information technology infrastructure. All basic requirements, such as offsite backup of values and inventory information, are carried out as part of the corporate procedures. The audit team did not fully examine all of these procedures. It is noted that OMNR completed the North Bay District Forest Information Management Project Plan (October 2010) which, among other things, proposes a District Forestry Data Structure. The advantage of this is that all information is maintained in a controlled structure so that it can be retrieved more easily and, when necessary, by other members of the District team aside from the individuals responsible for a specific project. It is a step forward in data management and is still being implemented.

For data management, the Company has access to a top quality GIS system in partnership with MITIG Forestry Services Ltd., a separate company. Other non-GIS needs are managed in-house. Almost all of the Company's information is managed electronically, through the GIS or other databases. Appropriate agreements are in place to cover confidentiality and security of information. Archiving, provision of maps, prescriptions, and other files were seen to be professionally managed during the audit. Forest Information Manual technical requirements for base information and other values, FRI, FMPs, AWSs, amendments, and annual reports follow

procedures, including electronic submissions. Timing and quality of these data are described elsewhere.

4.6 MONITORING

Compliance Monitoring

In 2006, OMNR reorganized reporting relationships which affected enforcement staff. Enforcement personnel no longer reported directly to the District and the requirement to prepare a formal, all program encompassing, district-wide Annual Compliance Operations Plan was discontinued. Districts/Administrative Areas of OMNR may develop annual compliance and monitoring goals and targets for the range of programs which they regulate, including the Forests program. These goals and targets form a component of the District/Administrative Area's annual work program planning process and must be consistent with the priorities and objectives of the Regional resource management plans. The Regional plans provide guidance for the Region and to Districts for implementing the compliance monitoring program on all aspects of natural resource management, protection, and maintenance that falls under the jurisdiction of OMNR. Some OMNR Districts, such as North Bay, have elected to continue planning their compliance and monitoring programs using the former report format as a template. The compliance plans follow a risk-based approach that ensures operations and activities that are at greatest risk receive the highest priority for OMNR monitoring and inspection efforts. There are currently three staff in the OMNR North Bay District that are certified compliance inspectors. The number of staff trained to perform compliance inspections is adequate and the level of compliance oversight by OMNR appears to be effective, given the scope of activities being undertaken on the Forest.

Ontario Ministry of Natural Resources does not conduct any self-assessment with regard to achieving targets established for its staff in the Annual Compliance Operations Plan. Although this deficiency appears not to be having a serious detrimental effect on the quality of OMNR's compliance program, they are encouraged to consider evaluating their own compliance monitoring program. Such assessments may help focus compliance priorities, efforts, and use of resources for future compliance plans prepared by the District. The auditors are not making a recommendation to address this shortcoming, but hope that OMNR will give this suggestion some consideration.

The sample the auditors examined of the Forest Operations Inspection Program reports submitted by OMNR demonstrated that approximately 10% of the sampled in-compliant reports were not being submitted within the prescribed timeframes, while a higher level of tardiness (approximately 30%) occurred for reports on non-compliant activities. Based on previous experience, the auditors found that it is not unusual for non-compliance reporting by OMNR to be occasionally delayed, sometimes due to the need for more investigative time. This deficiency appears not to be having a serious impact on the compliance program.

The ten-year compliance strategy prepared by the Company met all of the requirements outlined under the applicable Forest Information Manual and Forest Compliance Handbook (2008) that were in effect when the strategy was approved. The strategy includes a background description of the Nipissing Forest as it relates to the forest compliance monitoring program, as well as a comprehensive section dealing with compliance trends, goals, objective and strategies.

Monitoring and reporting procedures are outlined, measures for dealing with non-compliances are described, and roles and responsibilities for implementing the compliance program as well as reporting standards are defined. The strategy is very complete and meets the applicable requirements. In the opinion of the auditors, the compliance strategy is very well written and appropriate for the operations that were anticipated on the Nipissing Forest.

The Company has also prepared an Annual Compliance Schedule of Action for each of the five years within the scope of the audit (2006-2011). Each compliance schedule is an annual supplement to the compliance strategy and includes sections dealing with annual compliance priorities, monitoring, inspection, reporting, and remedial action. Other components attached as appendices to the Annual Compliance Schedule of Action included the Schedule of Planned Inspections, a Compliance Checklist, and a listing of Compliance Inspection Priorities. The compliance schedules are submitted to OMNR along with the AWSs, with both documents being reviewed and approved concurrently.

Examination of the inspections reports filed under the Forest Operations Inspection Program provided ample evidence of the level of monitoring that has taken place over the five-year audit period. The Company and OMNR both utilize the Forest Operations Inspection Program software for reporting compliance monitoring inspections for access, harvest, renewal, and protection operations. Overall, the auditors were generally satisfied that the level of monitoring on the Nipissing Forest was appropriate and that the program is being implemented very effectively. There were only a few minor non-compliance situations with road maintenance and wood utilization found during the field audit, which are not expected to pose any serious threat to any values or the sustainability of the Forest.

The Company ensures that staff and overlapping licensees are offered opportunities to attend training courses and workshops that are made available. Although attendance at the training sessions is not mandatory, the majority of operators attend, which is confirmed by the records maintained by the Company. A significant part of training for overlapping licensees and front-line workers is supplemented through the routine interactions with NFRM and overlapping licensee staff in the field. The Company has cultivated good working relationships with licensees and contractors, who have helped to convey training messages to the front-line workers. Overlapping licensees are expected to provide training to their employees and develop a system that will promote corrective action and provide a progressive disciplinary system for employees that do not adhere to the requirements. Although the Company's casual approach to training front-line staff is not formally structured and not strongly documented, it appears to be successful.

To assist licensees with keeping their operations compliant, NFRM compiles a block checklist that is provided to each overlapping licensee and reviewed at least one month before operations are slated to begin within a particular block. Copies of FMP conditions, harvest and water crossing guidelines, and standard operating procedures and protocols are attached to the checklist and verbally reviewed. A copy of the approved AOC prescriptions, along with maps, FOPs, and any special conditions that apply to each block, is provided to each individual licensee. Licensees are encouraged to contact NFRM staff if they are unclear on any aspect of their planned operations. This early review allows licensees sufficient time to contact private landowners for the purpose of establishing parcel boundaries, thus preventing any encroachments onto private land.

All non-compliances discovered by Company personnel have been reported promptly, according to interviews with OMNR and reviews of the Forest Operations Inspection Program reports. In nearly all non-compliance cases, NFRM and the overlapping licensees were cooperative by taking corrective action and remedying the situation soon after the infraction was discovered.

According to the Forest Operations Inspection Program documentation, non-compliance frequency originating from NFRM inspections has fluctuated from 3.6% to 11.8% per year during the audit term, while non-compliance frequencies from OMNR reporting fluctuated from 19.4% to 50.0% per year. Average reported non-compliance frequency during the audit term was 6.5% and 22.7% by NFRM and OMNR, respectively. The disparity between the results between the two parties is likely attributed to OMNR inspection procedures, which are designed to focus efforts toward high-risk operations, such as water crossings and AOCs.

Two penalties were assessed during the audit term. Three remedial compliance orders and at least 16 written warnings were also issued. The rest of the non-compliances were resolved by self-corrective actions being taken by the culpable licensee. After examining the non-compliance reports and correspondence, the auditors are generally satisfied that the assessments and remedial actions determined by the OMNR were reasonable and appropriate for the circumstances. The auditors noted that a number of procedural and policy revisions have been adopted in the most recent version of the Forest Compliance Handbook (2010), particularly with the elements related to issue management. Although considerable training was provided with the release of the revised handbook, some of the compliance inspectors that were interviewed admitted that they could benefit from additional training since there were significant changes in the new version compared to previous editions. The auditors feel that OMNR and SFL staff, as well as other individuals (e.g., overlapping licensees) involved with the compliance monitoring programs on the Nipissing Forest, may all gain from additional training on the application of the new handbook. (Recommendation 10)

Silvicultural Monitoring

The 2009 FMP broadly describes the Company's general program for monitoring silviculture effectiveness, the purpose for collecting the data, the types of assessments that are implemented, and how the information is used for assessing effectiveness of silvicultural treatments. The Company retains various procedures that detail the data collection and analysis methodologies for the various forms of silvicultural effectiveness monitoring surveys it uses. Helpful details about the monitoring methodologies and procedures were also obtained through interviews with Company staff. Monitoring activities entail post-harvest surveys, plantation survival assessments, regeneration stocking and condition assessments, and FTG surveys. Post-harvest surveys are conducted in stands managed under the shelterwood and clearcut systems as a preliminary evaluation prior to a FTG assessment.

Overall assessment of silviculture effectiveness is conducted on a Forest-wide basis through regular reporting, as required by the FMPM and the Forest Information Manual. Data is compiled and evaluated annually through the annual reporting process. The Company is required to provide commentary and an evaluation of program achievements and effectiveness when the Year 7 and Year 10 Annual Reports are submitted.

The audit team's field visits, along with examination of the documentation, confirmed that the boundaries of the sampled FTG field locations had been properly mapped and accurately recorded in the Company's reporting system. Observations in the field supported the Company's claims of free-growing status and generally agreed with the new stand descriptors and other stand attribute information.

One of the conditions of the Nipissing SFL included an obligation for the Company to ensure that certain lands harvested and/or renewed prior to the signing of the agreement reach the silviculture and FTG standards outlined in the FMP in effect at the time the lands were harvested/treated. These lands are denoted as "XYZ lands", with each land class (Class X, Class Y, or Class Z) requiring different obligations (which are fully described under Section 16 of the SFL document) from the Company.

At the time of the SFL signing, 44,059 ha had been classified as either Class X, Y, or Z. The auditors acknowledge NFRM has meticulously tracked its progress on treating the XYZ lands and made a special effort to survey many of these "backlog" areas during the 2006-2011 audit term. As of February 2011, 18,625 ha are currently FTG; 10,818 ha of lands, which are being managed under the clearcut system, are in the process of being treated to bring them to the FTG stage; 9,739 ha are undergoing treatment at various stages of the shelterwood system; and the remaining 4,877 ha are being managed under the selection system. Field inspections of a sample of the XYZ lands demonstrated that these areas are being tracked and recorded accurately. The Company is to be commended for their recent efforts in meeting their obligations for XYZ lands.

Silvicultural assessments are conducted on a regular systematic basis and the results of the free-growing surveys are recorded annually in the annual reports. This format allows an assessment to determine if the treatments were a "silvicultural success" or a "regeneration success". The results of assessments are utilized for planning purposes, such as confirming or adjusting assumptions about growth patterns and rates of forest development, which are used in forest modeling. Assessment results also shed light on the appropriateness of the silviculture treatments given the stand conditions that were encountered at the time of treatment.

Over the five-year period from 2004 to 2009, 10,639 ha of renewal areas were surveyed for regeneration success, which represents 33% of the planned level of 32,021 ha. The auditors are satisfied that NFRM maintains a robust collection of methodologies for monitoring silviculture effectiveness, but are somewhat concerned that the actual level of monitoring has not been keeping pace with the levels projected in the FMP and not quite keeping pace with the level of harvest and renewal over the past 10 years. The Year 10 (2008-2009) Annual Report recognizes the shortfall in the regeneration assessment effort, but does not outline a clear action for addressing this deficiency. During the past two years, the effort to assess FTG status continues to amount to approximately 2,000 ha/yr but should be closer to 4,000-6,000 ha/yr. A recommendation has been issued to increase this effort. (Recommendation 11)

Audit assessments were conducted by OMNR North Bay District over the 2006-2010 period of the areas declared FTG by NFRM. The audits were conducted on areas managed under even-aged systems (i.e., shelterwood and clearcuts). Representative samples of 5% and 10% were selected from areas declared FTG for selected years. A report of the audit findings was prepared combining the results from assessments completed on the two management units situated in

the North Bay District. The reports produced for 2006 and 2007 did not prove to be particularly informative nor was there much text provided to explain the purpose of some of the tables. Some analysis could not be undertaken due to software issues and the intended analysis was never revisited later. For 2008, the utility of some results was questioned due to the small sample size which did not provide reliable confidence limits. Because of the limited datasets, it is difficult to draw conclusions regarding the general accuracy of the FTG results. However, it would be useful for OMNR to share its results for specific stands with NFRM, particularly where there are noticeable discrepancies, to determine if adjustments to the inventory are warranted. The auditors believe there is merit in having OMNR's results shared with the Company, if only to initiate discussions in those cases where discrepancies in the findings are being detected. (Recommendation 12)

Annual Reports

Annual reports for the first four years of the 2006-2011 audit term were available for the auditors to examine. The 2010-2011 Annual Report was not available since it was not due for submission at the time of the audit. The Company has been fairly attentive to submitting their annual reports on time. Three of the four annual reports prepared during the audit term were submitted prior to the deadline, while one was submitted two weeks late.

The annual reports are generally of good quality. The level of analysis and commentary satisfactorily meets the applicable FMPM requirements. Some areas may have benefited from additional explanatory text or cross-references.

A sampling of evidence shows that harvest areas observed in the field were properly recorded in the required tables and maps that accompany the annual reports. Comparisons of the annual report depletion, renewal, and maintenance maps to observations made in the field suggest that the treatment information is being accurately recorded.

A review of the forest operations compliance sections confirmed that the annual reports are accurately identifying the non-compliances that occurred and describing in sufficient detail the circumstances, undesirable conditions, and responsive actions taken.

Both the 2004 FMP and 2009 FMP identify two exceptions to the silviculture guides to be monitored. The annual reports prepared during the audit term devoted a section specifically to describing the monitoring of the exceptions prescriptions that occurred during the year.

Monitoring of these SGR exceptions has been a cooperative effort between NFRM, OMNR North Bay District, and Northeast Science and Information Unit, as well as the Forestry Research Partnership. This effort has resulted in OMNR considering making modifications to the silvicultural guides that would permit full-tree logging at the preparatory/seed cut stage of shelterwoods as a conditional practice. The revisions to the silviculture guides are being contemplated in response to a recommendation in the 2006 independent forest audit.

Progress towards achieving FMP targets is explained in various locations in the text of the annual reports. Explanations for any significant deviations between actual level of operations and FMP forecasts are provided in most cases. The rationale and reasons, when provided for the deviations, are reasonable. The text of the Year 10 (2008-2009) Annual Report, in particular, includes extended analysis for more of the indicators and targets listed in the 2004 FMP.

Comments on emerging trends are made where possible. In many cases, however, it is difficult to make comparisons on long-term trends due to changes in model or data element parameters (e.g., changes in forest units or wildlife habitat classifications) and this situation is noted in the report text. In a couple of instances, the report author attempted to make consistent comparisons by using data elements, such as working groups, that have remained constant over the past 20 years. For analysis of Table AR-10, the Company has manipulated the stand data so that the forest unit attributes for stands were consistent with the 2009 FMP forest unit definitions. The auditors commend the Company for making this effort to facilitate a more meaningful analysis of the forest condition trends. Where analysis was undertaken that did not conform entirely with the FMPM requirements, the text clearly pointed out the variance to the reader.

The Year 10 Annual Report has a number of comments and statements that could be construed as recommendations for future action by NFRM. Such statements are well-intentioned and would likely lead to improvements in the sustainable management of the Nipissing Forest. Unfortunately, these statements of recommended actions could be easily overlooked. To ensure that these recommended courses of action do not become lost, the auditors would recommend that such statements be clearly highlighted or emphasized in the text of the Year 10 Annual Report, with perhaps a summary of the recommendations included at the end of the report. This section would add tremendous utility to the annual report document. (Recommendation 13)

Ontario Ministry of Natural Resources provides staff with regularly updated direction regarding the review of annual reports. Under both FMPMs, the OMNR District and Region must review the annual reports in specified milestone years (e.g., Year 3, Year 7, and Year 10) but has the option of accepting the Annual Report "as is" in other reporting years. The records indicated that OMNR elected to review only two of the four annual reports which had been submitted to date by NFRM for the 2006-2011 audit term. The Year 8 (2006-2007) and Year 9 (2007-2008) Annual Reports were accepted as submitted. However, the review for the Year 10 (2008-09) Annual Report, which is a mandatory review according to the 2009 FMPM, was not completed by OMNR North Bay District, nor was it carried out by OMNR Northeast Region. North Bay District must ensure that sufficient resources are available to ensure that mandatory reviews of annual reports are completed in accordance with the applicable requirements. (Recommendation 14)

4.7 ACHIEVEMENT OF MANAGEMENT OBJECTIVES AND SUSTAINABILITY

Forest sustainability is the overriding goal of the CFSA. The success of forest management activities in meeting that goal has been assessed in terms of meeting the objectives they were designed to achieve. By reviewing planning commitments as detailed in the 2004 FMP against achievements and analysis shown in Appendix 2 and as reported in the Year 10 Annual Report, and observations during this audit, the auditors have assessed sustainability on the Nipissing Forest.

The audit and survey procedures employed by NFRM to collect the necessary data for the purposes of analyzing sustainability criteria are appropriate and relevant. There is inherent weakness in the current inventory but considerable volumes of data are derived from FRI

datasets which have been consistently updated and are analyzed using contemporary GIS systems. The Company utilized SFMM in developing the strategic components of the 2009 FMP which generated the data needed to analyze the forecasting indicators. The Company conducts an effective and regular compliance monitoring program. Through its normal standard operating procedures and programs, NFRM is regularly collecting and recording the tabular and spatial data needed to meet the FMPM requirements. The Company's survey and data collection systems also serve a cross-purpose of collecting data for assessing principles and criteria associated with its Forest Stewardship Council certification.

The auditors are confident that the Company possesses the appropriate skills and programs for measuring progress and achievement of the most significant objective indicators established in the 2009 FMP. Much of this data can be derived from the annual reports, compliance monitoring programs, silvicultural effectiveness monitoring, and other reporting systems that the Company has in place. The methodologies employed for the collection of data conform to relevant guides that are sanctioned by the Province where there are guides in place (e.g., Silviculture Effectiveness Monitoring Manual, Forest Compliance Handbook). Reporting to date has been in accordance with the requirements of the applicable FMPMs and Forest Information Manuals, thus assuring that data collection and compilation is meeting the provincial standards. Judging from the evidence observed by the audit team, NFRM has collected sufficient data to support the appropriate sustainability analysis when preparing the Year 10 Annual Report.

The Year 10 Annual Report shows actual harvest has consistently been about half of that planned and has actually trended downward over the past 15 years. Harvest in the 1990 planning term was 58% of that planned and decreased to 51% in the 1994 term. It was down to 41% of the planned harvest in the 2004 term. The reduction is spread fairly evenly across all forest units, which supports a conclusion that harvest activities, as currently conducted, will not substantially change the forest unit representation on the land base.

Given that harvest levels are the most manageable and predictable influence on how this Forest will change into the future, the low level of achievement is a significant factor. If a forest stand is not harvested, the habitat that the forest stand represents does not change from late successional to an early successional, and the predicted forest and habitat renewal process will occur at a slower than predicted pace.

Stands that are not harvested as planned will age into less productive sites as natural senescence, reduced growth, and mortality reduce the amount of merchantable timber that is available. The stands are likely to become less viable for harvest operations.

The FMP process models availability of habitat type based on assumptions that the available harvest area will be depleted and then renewed into a younger forest. If this is occurring at half the rate planned, it is reasonable to assume that available habitat for species requiring an early successional forest with its open canopy and very productive plant growth will be less than forecast. It is probable that there will be a deficiency in the amount of young forest on the landscape.

The OMNR Regional Director's decision to constrain the transport of logs on public highways in the Restoule area may well exacerbate the challenge in achieving the harvest objective. This is an important source of wood on this Forest. Alternative routes are clearly more expensive.

The FMP process models a “null” hypothesis, where no harvest or fire suppression occurs, and then harvest runs with varying degrees of silvicultural or wildlife habitat focus. The Year 10 Annual Report includes a partial analysis of the impact of harvesting at actual levels on this forest for the last 15 years.

The FMP process requires an assessment of the long term management direction at Year 3 of the planning cycle and a review of modeling assumptions in the Year 7 Annual Report.

The audit team believes that a continuation of the trend to harvest half the available harvest area, coupled with a revised FRI, could have an important influence on the achievement of management objectives. The mandatory review of objectives that is required in the FMP process should be sufficient to capture the impacts of these two changes, but the auditors observe that the view of forest objectives may change considerably.

Ontario directs long range (in excess of 100 years) planning using sophisticated computer models as the basis of its planning effort, but all of these projections are dependent on good input data. The auditors are not convinced the FRI used for the 2004 and 2009 FMPs provides that good data. This will be rectified in the medium term. The new FRI may change several forecasts that the auditors and managers have relied on to project a sustainably managed forest estate.

That said, the current FRI, and the projections based on it, are accepted as the best available forecasts. District OMNR and NFRM have done a good job of using the data and the models to prepare these forecasts. They also have a significantly higher than normal field presence in this Forest. Most sites are field inspected and timber marked before harvest. Most AOCs are verified or revised prior to harvest. This field presence is excellent compensation for questionable data.

It will be challenging to assess the effectiveness in achieving the 42 management objectives in the 2009 FMP. The inclusion of many objectives identified at the Long Term Management Directions Workshop has led to expectations that probably cannot be met, and some that are simply beyond the scope of the CFSA. In the opinion of the audit team, these objectives need to be streamlined in future plans to ensure that they fall within the scope of the CFSA and are measurable and feasible.

The Company is conscientiously monitoring its achievement of objectives. The forecasting indicators (e.g., frequency distribution of planned disturbances by size class, long term projected AHA and volume by species group, area of habitat for forest-dependent provincially- and locally-featured species) were calculated at the time of plan preparation. For all of the monitoring and compliance indicators, the Company has protocols and established practices in place for collecting the needed data for assessment (e.g., a compliance monitoring program and certified compliance inspectors on staff).

The ecological state of this Forest is largely driven by its near and midterm history and by the dominant silvicultural systems used. Just over 50% of harvest activity is some form of a partial removal system, relying on natural regeneration of the same tree species to replace the harvest.

The Forest has met most of its diversity objectives. Red oak renewal was established as a tending treatment with herbicides that effectively control most hardwood and shrub

competition without impacting oak seedlings. It is a refined use of this normally coarse tool, and the audit team applauds the innovation evident. The achievement of large stands of old growth, and the movement of the yellow birch forest unit to historic levels, is challenging, largely due to the actual demand for timber.

Stand level diversity targets have been accomplished through stand level silviculture which, where required, has preferred or protected particular tree species (i.e., red and white pine) and the application of AOC prescriptions. The intensive stand level activity will ensure that current diversity will remain on this Forest.

Social and Economic Objectives

Social and economic objectives have been specifically defined for timber production, tourism, fisheries, wildlife, First Nations resource use, resource access, recreation, education and research, and cultural heritage. With the exception of timber harvesting, all targeted goals are either qualitative or difficult to quantify.

The timber harvesting sub-objective has been met in terms of providing a continuous and predictable supply of timber. The market-driven reduction of harvest activity has challenged the Company's ability to meet this objective in the near term and, most probably, for the long term. The actual harvest averaged about 50% of that planned over the five-year audit period. Harvest has occurred in accordance with objectives to protect tourism values, cultural heritage values, non-timber values, recreational values, and other interests.

Values Dependent on Forest Cover

The Company has addressed all objectives that are intended to support the maintenance or improvement of habitat on the Forest. The FMP has plainly addressed this situation, and has specific targets in place, while considering the need to maintain the social and economic values dependent on harvest.

There is good evidence that wildlife and fisheries values are being effectively protected. The implementation of AOCs has been very good, and there is sufficient experience across the province to predict that these AOCs are an appropriate technical approach for ensuring these values are maintained. Compliance monitoring is effectively being implemented to ensure adherence to AOC prescriptions.

Silviculture

Silviculture was identified as a weakness in the last independent forest audit but it is now a strength. All sites visited showed excellent regeneration. This is the evidence on which the audit team puts most weight in concluding that the silviculture program being implemented is effective.

The innovative use of herbicides on the Forest is noted and applauded. The fact that this appears to directly contradict a management objective to reduce and eventually eliminate herbicide use prevents the auditors from issuing a best management practice for this issue.

The auditors also note that the size and scope of the program, including forest renewal, have been implemented in accordance with harvest levels. The level of silviculture effectiveness monitoring requires improvement, however, which the auditors have identified in Recommendation 10.

Of the 10,639 ha surveyed during the period from 2004 to 2009, 9,692 ha were declared FTG (91%). Of the area declared FTG, 5,947 ha (61%) were successfully renewed to the projected forest unit. 3,746 ha were successfully renewed to another forest unit. Most of the area unsuccessfully renewed was comprised of areas that required tending. The moderate level of silviculture success may reflect the inadequate level of competition control that was exercised in the past (identified in the 2006 independent forest audit), a situation which NFRM is currently addressing. Table 2 provides a breakdown of the level of FTG survey effort during the 2004 to 2009 period for each forest unit and lists the level of silvicultural success and regeneration success.

Table 2. Successful Regeneration by Total Area and Projected Forest Unit on the Nipissing Forest (ha).

Forest Unit	Area Assessed	Area Successfully Regenerated to Projected Forest Unit	Total Area Successfully Regenerated	Area Not Successfully Regenerated	Silviculture Success	Regeneration Success
PWST	1399	582	1273	126	45.7%	91.0%
PR	452	403	403	49	100.0%	89.2%
PJ	858	783	858	0	91.2%	100.0%
PO	1223	865	1134	89	76.3%	92.8%
BW	1302	390	1022	280	38.1%	78.5%
MCL	56	3	56	0	5.4%	100.0%
PJSB	1099	810	1081	18	74.9%	98.4%
SF	1677	786	1504	173	52.3%	89.7%
MW	1674	759	1602	72	47.4%	95.7%
PWUS	629	347	503	126	69.0%	79.9%
LWMX	11	11	11	0	100.0%	100.0%
HDUS	251	208	237	14	87.8%	94.4%
BY	8	0	8	0	0.0%	100.0%
TOTAL	10639	5947	9692	946	61.4%	91.1%

Analysis of the results indicates higher levels of silvicultural success when treating PR , PJ, LWMX, and HDUS forest units, and greater challenges when renewing BW, BY, MW, MCL, PWST, and SF forest units. Further analysis shows that there were difficulties when attempting to convert hardwood forest units such as BW, PO, and MW to conifer-dominated forest units. The lesser degree of success is partly attributed to past silvicultural practices, such as the lack of prompt tending, which was noted in the previous independent forest audit. These results and

the previous audit findings have prompted NFRM to review its cultural practices and make modifications to its operations with the goal of improving success. The Company has also used these results to adjust their post-renewal succession assumptions in the strategic modeling undertaken for the 2009 FMP, which should assist in narrowing the gap between the level of silvicultural success and regeneration success. The auditors are satisfied that the Company is taking appropriate actions on the basis of the outcomes of their silvicultural effectiveness monitoring program.

The Company met its Renewal Trust Fund minimum balance obligations as of March 31, 2011 and in each of the four previous years in the audit period. The Company has revised its renewal rates, and is expected to continue to meet the minimum balance obligations into the future.

Access

Roads on the Nipissing Forest are well established. This is a forest that is highly used for recreation and it is a difficult task to prevent access to closed road systems in the face of mobile vehicles such as all-terrain vehicles. One recommendation has been made that additional effort be made to restrict vehicular access in Enhanced Management Areas. The audit team concludes that roads on the Forest are located in a manner that reduces their impacts on the forest environment to an acceptable level.

The impacts of harvesting on water quality were assessed at both water crossings and on harvest sites adjacent to aquatic habitat. Operations adjacent to aquatic habitats were consistently within practice standards established for operations in riparian zones.

In summary, the ecological components of the Nipissing Forest, which are most likely to be influenced by forest operations, are being managed in a sustainable manner. The audit team is confident that the Nipissing Forest, if managed as currently planned, will be maintained for the benefit of future generations as proclaimed in the CFSA.

4.8 CONTRACTUAL OBLIGATIONS

The audit team reviewed the terms and conditions in SFL #542053. The auditors noted a high level of conformance with the contractual requirements of the SFL.

All parties listed have had access to more wood than they have had economic reason to utilize.

The 2004 and 2009 FMPs, AWSs, and annual reports have been completed as required. The Company effectively responded to a salvage opportunity.

The Company and the OMNR District have diligently addressed the findings of the 2006 independent forest audit. Each recommendation from the audit was carefully considered and action to address each recommendation is either completed or in progress.

The Company maintained the required minimum balance in its Renewal Trust Fund for each year in the audit period and has conscientiously reviewed and revised its renewal rates to ensure the silvicultural program is adequately resourced.

Appendix 3 provides detailed comments on the performance of NFRM in meeting its SFL obligations.

4.9 CONCLUSIONS AND LICENCE EXTENSION RECOMMENDATION

The auditors have concluded this is an effectively managed forest. Nipissing Forest Resource Management Inc. and OMNR North Bay District have done a very good job of implementing the strategic and tactical direction presented to them in guidance documents. Staff have an excellent knowledge of the land base, and site decisions regarding harvest operations and values protection, including ecological values such as aquatic and species-specific habitat, appear to be well thought out and implemented effectively.

Staff members from OMNR North Bay District and the Company communicate pragmatically and effectively. The result is management decisions that very commonly incorporate higher level direction with professional judgment to produce activity that is sensible.

The Forest has two significant challenges; the reliance on a forest inventory that is out of date and harvest levels that are consistently below approved levels. The modeling effort and conclusions in the 2009 FMP are challenged by the quality of the information used as a basis for the plan. A new inventory has been promised and should be available sometime in 2014.

Operational activities on this forest are very well done. Company and OMNR staff are on the ground very frequently. Roads, water crossings, and harvest areas are consistently designed and implemented in a manner that provides a high level of protection for AOCs and other values. The renewal program has been implemented in a highly effective manner. The stand level management of this forest is as good as the auditors have witnessed anywhere in Ontario.

The audit team concludes that, based on the evidence reviewed, management of the Nipissing 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 SFL #542053 held by NFRM. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of SFL #542053 for a further five years.

APPENDIX 1 – AUDIT FINDINGS

Independent Forest Audit – Record of Finding

Recommendation # 1

Principle 2. Public Consultation and Aboriginal Involvement

Criteria 2.3 Issue Resolution

To examine the approach used to resolve issues.

Procedure(s) Examine and assess the approach used to resolve issues identified by the public. Include the following:

- whether any issue resolution requests were made and if so, whether the required procedures in the applicable FMPM were followed
- examine how the issue was resolved, and if so, how it was reflected in the final list of required alternations and the final FMP, the minor or major amendment or contingency plan

Background Information and Summary of Evidence: During the preparation of the 2009 FMP, the issue resolution process was invoked by a group of permanent and seasonal residents of the community of Restoule who were opposed to a road corridor and haul routes that were proposed to go through their community. They articulated their concern as not opposition to logging but rather to the road planning with the subsequent result of log hauling through the community. The planning team was of the opinion that the routes were necessary to guarantee access to Crown timber intended for harvest in this and subsequent FMPs. A secondary reason for the road is that it would facilitate access for the Dokis First Nation to harvest in Hardy Township and provide a secondary means of access for the Dokis community.

The issue consisted of two somewhat separate issues. The first was the opposition by residents to hauling operations on Highway 534, a public road. The second was the opposition to a proposed road corridor, referred to as the Porter Road Alternative, that would connect to an existing road known as Hawthorne Drive. With both issues, concern was for public safety and the social impact associated with the road haul.

It should be noted that the land in and around Restoule is a combination of both Crown and private property. Almost none of the Crown land is adjacent to the existing local highway system, which effectively means several thousand hectares of Crown resources can only be accessed via the existing public road systems (such as Hawthorne Drive) or by the Crown or companies gaining access rights through private land.

The concern was first identified during an April 2008 open house in Restoule.

At a second meeting in July 2008, results were presented on a comparative analysis of alternatives. The residents of Restoule did not accept the analysis as being balanced and sensitive to the social and public safety concerns that they articulated.

The issue resolution process was invoked in September 2008 by a large number of residents (over 35) following a third public meeting in the community. At that meeting, a more comprehensive analysis was provided and

the Porter Lake Route via Hawthorne Drive was identified as having the least overall impact but the highest social impact, primarily due to the safety issues identified by the community. All the other options required the crossing of private land, which involves landowner agreement and is, therefore, dependent on landowner cooperation. The assessment of road alternatives was well thought out and the team conducted a very sound analysis. The analysis was on par with a small class environmental assessment process and eleven alternatives were examined.

During the month of October 2008, the plan author was unable to reach a resolution with the various individuals that invoked the process. The plan author indicated that the solution proposed by the residents of Restoule was to remove Hawthorne Drive as a selected means of forest access in the plan. In response, the plan author indicated to the District Manager that the Stage 2 process should be initiated.

The public safety and social impact concerns of the community are understandable. However, during the entire process the residents were not interested in discussing mitigation associated with the proposed alternative.

In response to the community concerns, the Acting District Manager offered another meeting in November 2008 to attempt to resolve the issue. At least 50 individuals attended this session. On December 11, 2008 the Acting District Manager issued her decision. First, to continue to use the Sand Lake Road to harvest blocks north of Restoule and place timing restrictions on the haul (a ban on hauling from Victoria Day weekend to Labour Day). Second, to use Hawthorne Drive for log hauling (essentially confirming the Porter Lake Alternative), along with a variety of mitigation measures. The Acting District Manager's decision was then appealed by both Tembec and the residents of Restoule. It was appealed by Tembec because of the timing restrictions (for potential environmental and safety concerns). The Regional Director's decision supported the Acting District Manager's decision regarding the use of the Sand Lake Road and timing restrictions. However, the Regional Director's decision deviated from the Acting District Manager's decision in that he directed the planning team to remove the Porter Lake primary road corridor as a hauling route. The Regional Director identified that this decision was dependent on Tembec being able to secure agreement for hauling across private land.

It should be noted that OMNR does not have the authority to restrict or control hauling or travel on non-OMNR public roads.

Discussion: The decision to refuse the Porter Lake Alternative and, therefore, not use Hawthorne Drive for log hauling was a very popular decision for those residents of Restoule that had been involved in the process and was expedient from a process perspective as it most likely eliminated an individual environmental assessment elevation request. While this decision was in the Regional Director's prerogative, it was counter to the planning team's recommendation. It was effectively a local win solution where the immediate concerns of the residents trumped the other environmental, economic, public policy, and social benefits and the planning process. It is in many ways a challenging decision to make as different values are considered (e.g., costs, environmental effects, concerns over public safety) that are not directly comparable.

Hauling logs through a small community is not a unique phenomenon in northern Ontario. The auditors have visited tens of communities in the north that experience much more extensive hauls than Restoule would have. While some stakeholders indicated to the audit team that this decision may set some bad precedents in forest management planning, it is suggested that the situation in Restoule should only be looked upon as a unique event.

At the time of the audit, Tembec had still not obtained access via the private land for the proposed road. Everyone appears to hope that Tembec can obtain this permission and that a new access point could be provided.

Conclusion: Extensive effort was made by OMNR, NFRM, the LCC, and Tembec to address the Restoule issue resolution process. The process and planning effort by the planning team was well followed and they should be complimented. At the time of the audit, Tembec had still not obtained access via the private land for the proposed road. Everyone appears to hope that Tembec can obtain this permission and that a new access point could be provided.

It should be noted that OMNR does not have the authority to restrict or control hauling or travel on non-OMNR public roads. Ontario Ministry of Natural Resources may be able to achieve the seasonal restrictions desired via some other means (e.g., harvest timing restrictions or voluntary compliance). If it was intended that other means were to be used to achieve the restrictions, it would likely have been preferable and more transparent to the public to articulate what those other means were.

Recommendation 1: Corporate and Regional Ontario Ministry of Natural Resources shall restrict its issue resolution decisions to those that it can make under the *Crown Forest Sustainability Act*.

Independent Forest Audit – Record of Finding
Recommendation # 2
Principle 3. Forest Management Planning
Criterion 3.3.2 Forest Resource Inventory for the FMP
Procedure(s) 1. Assess whether the FRI has been updated, reviewed, and approved to accurately describe the current forest cover that will be used in development of the FMP
Discussion: All the appropriate updates and revisions to the 22-year old inventory were made. The accuracy of the inventory for determining such derived values as wildlife habitat is unknown, especially when such values are then projected over the long time horizons used in the plans. This means that there is no way to determine whether the projections are themselves accurate. Forest resources inventory data is most accurate on or about the time they are created and become less accurate as they age. Using older inventory data affects the accuracy of the entire plan.
Conclusion: The accuracy of the FRI-based forecasts in the management plan is questionable. The way such data is used leads to a presentation of indicators and forecasts which appear precise without truly being accurate.
Recommendation 2: Corporate Ontario Ministry of Natural Resources must ensure that a new forest resource inventory is delivered and implemented to replace the current inventory so that future forest management plans are not developed with such aged and inaccurate data.

Independent Forest Audit – Record of Finding

Recommendation # 3

Principle 3. Forest Management Planning

Criterion 3.4.1.4 FMP achievement of the Checkpoint ‘Support for Proposed Management Strategy’

Procedure(s) Assess achievement of the checkpoint including by reviewing the FMPM requirements and determining whether

- reasonable objectives, indicators (including desirable levels) and appropriate targets have been developed by the planning team with the assistance of the LCC
- the 4 CFSA objective categories have been addressed
- the objectives and indicators incorporated the results of the Desired Forest and Benefits meeting.

Background Information and Summary of Evidence: The 2009 FMP includes 42 objectives which are to be monitored and evaluated against 62 indicators. The Desired Forest and Benefits Workshop drew input from a variety of stakeholders and LCC members who helped identify several of these objectives. The process requirements were met, and the workshop clearly was successful in identifying a vision of the future forest from a number of divergent perspectives. However, several of the objectives in the FMP are beyond the scope of a forest management plan, while several more are of marginal utility.

Many of the indicators have extended call dates of 100 years and are based upon projections of the forest inventory data either spatially or aspatially. Ontario’s FRI data does not include statistical accuracy measures and are most accurate on the date of their creation. Identifying targets for forest conditions or wildlife habitat with any specificity 100 years hence should only be considered allegorical. Many of the targets presented have a precision that overstates their accuracy. Forest estate targets set in distant times cannot be easily measured – every 10 years a new plan is set, every 20 years or so a new inventory is created, while policy and planning change is ongoing.

Objective 20 is “*to measure carbon emissions changes in the forest influenced by harvest operations*”. As written, this objective would be within the mandate of the Ministry of the Environment not the Ministry of Natural Resources. Some members of the planning team stated that this objective was more for monitoring carbon sequestered by the Nipissing Forest. If this is the case, then the planning process and multiple reviews failed in catching this distinction and correcting the error. The indicators provided are based on a carbon budget analysis on the current FRI, which obliquely measures carbon sequestered and models it forward.

Objective 31 is “*Protect water quality of known sources of drinking water*”. In this case, the indicators are related to forest compliance. The assumption is that if forest compliance monitoring finds no non-compliance, water quality will be protected. Water quality was discussed at length in the timber

environmental assessment hearings and the finding was that if appropriate guidelines were applied water quality would be protected. The AOC prescriptions in this plan serve that purpose. Potable water quality is more appropriately the purview of local municipalities or regional health units.

Objective 39 is *“To reduce and eventually eliminate the use of herbicides used in forest management on the Nipissing Forest”*. In discussion, every member of the SFL management team expressed a lack of support for this objective. In fact, the audit team was impressed with the innovative use of forest chemicals they found on the Forest and, failing the finding that the innovation seemed directly contrary to this objective, would have identified the silvicultural program as a best management practice. All evidence gathered by the auditors supports an objective that promotes use of herbicides only as required to achieve long term management direction. Objective 39 is not supporting the good renewal program viewed on this audit.

Other objectives indicators appear to be solely process-based rather than result-based. For example, Objective 38 is *“To facilitate opportunities for the harvesting of non-timber forest products on the Nipissing Forest.”*, which has an indicator of *“Communication between NTFP and NFRM/MNR”*. As such, this indicator measures process rather than progress. Objectives 40 is *“To encourage support of the Local Citizens Committee in the development of the FMP for the Nipissing Forest”*. This objective is more appropriate for the terms of reference of the planning team.

Objectives 11 through 18 were designed to ensure the continued monitoring and current habitat levels for a list of 18 species of provincial and local significance. These objectives could be consolidated into one wildlife habitat objective with the habitat of the 18 species as the indicators.

One of the selected wildlife species is white throated sparrow, which is predominantly an early succession species. There are several objectives which address the habitat needs of the white throated sparrow. Objective 11 which is aimed at the selected species habitat is the initial focus. Two other objectives are directly related: Objective 3 states *“With consideration given to the current landscape, ensure that an even distribution across the forest of old growth stands, and old aged stands is allowed to occur”* and Objective 12 states *“To provide early successional forest over a 100 year term”*. Other objectives overlap with this desired benefit. Objective 7 seeks a *“natural forest dynamic”*. Objective 19, the wood supply objective, by its nature creates early successional habitat through the clearcut system. The indicator for this objective seeks to match planned and actual harvest, which is also a key to implementation of early successional habitat.

The indicator for Objective 12 is *“Non-spatial assessment of total pre-sapling sampling and two-canopy uniform area by Ecosite type (ha) by the start of each planning term”*. The indicator of Objective 11 is *“Area of preferred wildlife habitat for locally significant species by term.”* The habitat indicators in the Strategic Forest Management Model (SFMM) are mathematically identical to forest cover as measured by ecosite abundance and distribution. The wildlife indicators sum together ecosite areas in different combinations that equate to wildlife habitat suitability. However, there is no additional information provided. In the case of white throated sparrow, for example, micro-habitat measures are just as critical to understanding the long term habitat quality. The use of the wildlife habitat suitability approach in SFMM is interesting because it arranges the information in a way that is helpful for understanding the effect on wildlife species. In practical terms, the indicator does not directly measure white throated sparrow habitat and often excludes critical life requirements.

Conclusion: Forest management planning in Ontario is an inclusive and complicated process. However, inclusion of an unnecessarily large number of objectives will, in all probability, result in an increase in effort to support objectives that are best addressed by other agencies, not accurately measurable, or redundant. Further analysis should be completed to ensure objectives are relevant, measurable, valid, and feasible within the scope of forest management on Crown land. To be specific, the auditors do not envisage a revisiting of the Long Term Management Direction of the plan as part of a corrective action to this recommendation. However, consolidation of objectives with common indicators, and identification of objectives that fall outside the direct scope of forest management planning, should allow streamlining of the objective management process.

Recommendation 3: The planning team for the Nipissing Forest must ensure objectives in future plans are measurable, predictable, relevant, understandable, valid, and feasible. Further, the auditors recommend that Ontario Ministry of Natural Resources ensure that all objectives in the forest management plan are within the scope of the *Crown Forest Sustainability Act* before approving a plan.

Independent Forest Audit – Record of Finding

Recommendation # 4

Principle 3. Forest Management Planning

Criterion 3.5.2 FMP area of concern (AOC) prescriptions

Procedure(s) Review the AOC prescriptions and assess whether

- documentation of AOCs and any related issues meets the applicable FMPM requirements

Background Information and Summary of Evidence: The audit team visited an area with two Self Sustaining Trout Lakes (SSTL) based on a concern that access had been increased in the area due to recent harvesting. For the 2004 plan there was no road building restriction in place around SSTL AOCs. Areas of concern at the time were focused on protecting brook trout habitat and discouraging colonization of beavers which can be detrimental to these fisheries. The new plan has increased the road building restriction (from FMP 14 AOC ID SSTL Self Sustaining Trout Lakes -- Conditions on Operational Roads). These changes are not in line with current approaches to access around these rare and significant values.

The two lakes under consideration (Green Lake and Sure Catch Lake) were previously accessible by pickup truck through a rough but passable trail. During the 2004 FMP, logging occurred and roads were upgraded significantly to within about 180 m of the shore. In the current plan, AOC prescriptions would require that a new road be "...decommissioned following operations as per the direction of the MNR Biologist." Although the operations were in compliance with the FMP at the time, the AOC prescription was not adequate in the 2004 plan for the protection of the value. Forestry operations should, as a minimum, not increase access to these rare and sensitive values.

There has been work done by Regional OMNR to refine the prescription for SSTLs with regard to access. The audit team supports the general direction of the Regional guidance and, in the interests of clarity, the auditors are not providing specific wording that may complicate Regional direction. The audit team is recommending that the AOC prescription for all SSTLs be amended in a manner consistent with Regional direction. This should include wording that stipulates that no road maintenance be allowed on existing roads within Zone 1 and 2, except for safety reasons. The intent is that, after operations, existing roads should be in a state equivalent to their original condition.

Recommendation 4: Ontario Ministry of Natural Resources shall amend the area of concern prescriptions for Self Sustaining Trout Lakes in a manner consistent with recent Ontario Ministry of Natural Resources Regional direction. The new area of concern prescription should include a requirement to minimize maintenance and improvement of existing roads within 400 m of the tree line (proposed Zone 1 and 2).

Independent Forest Audit – Record of Finding

Recommendation # 5

Principle 3. Forest Management Planning

Criterion 3.3.6.1 FMP submission, MNR plan review and approval

Procedure(s) 1. Review the preliminary and final lists of required alterations compared to FMPM requirements, documentation related to addressing required alterations, and have discussions with reviewers and the plan author to assess

- the suitability of required alterations
- whether any reviewers were also plan advisors or planning team members and whether this was beneficial for an efficient review (i.e. minimizing the amount of alterations)
- how the required alterations were addressed in the plan

Background Information and Summary of Evidence: There were 622 required alterations needed for plan approval which were provided to the plan authors on December 16, 2008. Additional required alterations were added on February 23 and March 17, 2009. A number of required alterations were inserted to address access issues in the plan. One such alteration went beyond the scope of the FMP and the CFSA by restricting use of a public highway. This resulted in changes to road use strategies which will be unenforceable. Another alteration requires the “forest industry” to undertake a survey of a public road, which is again beyond the scope of the CFSA.

Another alteration required industry to hire, at its expense, an Ontario Land Surveyor to re-establish the road survey as per the 1931 survey for the section of road not under the authority of the Local Roads Board at the west end of Hawthorne Drive. This direction is again beyond the purview of the CFSA. The audit team has no issue with government directing activities on public highways in the province, but is unable to find support in the CFSA for providing such direction in an FMP.

Recommendation 5: Ontario Ministry of Natural Resources must ensure that all required alterations to forest management plans requested by the Crown are within the purview and scope of the *Crown Forest Sustainability Act*.

<p>Independent Forest Audit – Record of Finding</p> <p>Recommendation # 6</p>
<p>Principle 3. Forest Management Planning</p> <p>Criterion 3.9 To review and assess implementation of the amendment process as applied on the management unit.</p> <p>Procedure(s) 3.9 Review the FMP or contingency plan amendment to assess whether adequate documentation existed for all amendments consistent with the applicable FMPM including whether the</p> <ul style="list-style-type: none"> • amendment is consistent with the FMP objectives or planning proposal for a contingency plan • amendment classification/approvals for administrative, minor, major amendments were appropriate
<p>Background Information and Summary of Evidence: The amendment logs for the two plan periods were reviewed (amendment and revision logs 2006-01, 2006-13, 2006-15, 2006-23, 2006-28, 2006-33, 2006-33, 2007-01, 2009-01, 2009-08, 2009-12, 2009-13). Over the five-year period of the audit there have been 25 administrative amendments and one minor amendment to the plans. There were also more than 60 AWS revisions made, mostly to fine tune allocations.</p>
<p>Discussion: There were four amendments associated with the blowdown event that took place on July 26, 2006. They were approved April 27, 2007; three were administrative and one was minor. Amendment 2006-33 was a minor amendment to allow for salvaging a large blowdown. The amendment was classified as minor (against the recommendation of the LCC) based on the fact that there were areas in the blowdown which had not been exposed to public review in either the current or past plans. Two of the other (smaller) amendments had similar areas included but were classified as administrative.</p> <p>Amendment and revision processing is inconsistent, taking anywhere from a few days to months for revisions and administrative amendments to be approved. Administrative amendments took from one day to more than six months to be approved, while minor amendments took from one month to five months. The back and forth between the District and SFL contributes to delays, as do internal delays within the District where approval requires multiple supervisors and staff to approve/accept amendments.</p> <p>Revision 2006-15 of the AWS was a revision to allow for adding additional planting area to the Fall plant. The amendment was submitted with two revisions to the revision in August. Approving a revision after the activity has occurred and after the AWS has expired seems redundant.</p> <p>Amendment processing also generally took longer than is typical. Amendment classification is extremely conservative, e.g., salvage amendments for fire damage are generally treated as administrative so as not to hinder salvage efforts and prevent wood degradation.</p>

<p>Recommendation 6: The Ontario Ministry of Natural Resources District must improve the consistency in review, classification, and approval of plan amendments and revisions.</p>

Independent Forest Audit – Record of Finding

Recommendation # 7

Principle 4. Plan Assessment and Implementation

Criterion 4.6 Renewal Support - Renewal support activities (tree seed collection, nursery stock production, tree improvement activities) must be conducted in compliance with all laws and regulations including the CFSA, approved activities of the FMP including SGRs (if applicable), AWS and FOPs (if applicable).

Procedure(s) 4.6.1 - Review and assess in the field the implementation of approved tree improvement operations

Background Information and Summary of Evidence: Tree improvement activities on the Nipissing Forest are primarily conducted on a site known as the Gurd Tree Improvement Area and Gurd Research and Demonstration Area, located in Gurd Township approximately 60 km south of North Bay. The research area is comprised of 200 ha of land that has a long history of forestry research dating back to the mid-1960s.

There are 28 various tree improvement projects, trials, and experiments established on the Gurd site at various stages of management. A summary of the projects was produced in 2001 and updated in 2008. According to the summary, some projects are still actively managed, while others have been idled, unattended, or simply terminated. Of interest to the auditors were a number of trials such as a natural white spruce seed production area; white pine, red pine, and white spruce clonal orchards; and a red spruce seed production area which could be directly beneficial to the renewal program on the Nipissing Forest. Company staff report that none of the seed used for artificial renewal on the Nipissing Forest is derived from improved sources. It is evident that there is insufficient quality and quantity of improved seed being generated from these sites to be used operationally on the forest. The auditors noted that the artificial regeneration inspected through this audit was vigorous. The lack of improved seed does not appear to have affected the performance of planted areas.

The 2004 and 2009 FMPs mention another tree improvement site located on the Nipissing Forest known as the Mattawa White Pine Clonal Seed Orchard. Current NFRM staff had little knowledge of the site, while one technician at OMNR North Bay was aware of its existence and brief history. Although considerable effort was made to establish this orchard, it appears that little activity has taken place on the site since the late 1990s. From what is known, the white pine trees are still producing cones, however, undesirable competition is beginning to creep in. There may also be seed collected from this site in storage at the Ontario Tree Seed Facility in Angus. It is unknown if the white pine trees in this orchard are producing seed that could be used on the Nipissing Forest.

Discussion: The auditors believe it is regrettable that none of the genetic material at the two tree

improvement installations located on the Nipissing Forest is being utilized for the SFL renewal programs. These two facilities could play a potentially important role as sources of genetically improved seed for the renewal program on the Nipissing Forest and other SFLs.

Conclusion: The auditors would encourage some minimal efforts to protect the substantial initial investment made in establishing these tree improvement facilities. Such efforts could potentially facilitate future cone collection for a variety of species, with the resulting improved seed being used to replace the general collection seed currently in inventories. At the very minimum, NFRM should arrange to have Forest Genetics Ontario and the Northeast Seed Management Association share their information regarding the possible utility of the genetic material at the Gurd and Mattawa sites for future cone collections. The auditors would further encourage NFRM and OMNR to explore various partnerships or other options (e.g., working with the existing Gurd Township Tree Improvement Management Committee) that could facilitate undertaking minimum maintenance work on the tree improvement installations to preserve their genetic value. The auditors would point out that tree improvement work is a reimbursable expense under the SFL Forest Renewal Trust Fund. Partnerships for managing tree orchards and tree improvement areas exist on other SFLs which could serve as a model for funding and working arrangements on the Nipissing Forest.

Recommendation 7: Nipissing Forest Resource Management Inc., in cooperation with OMNR North Bay District, shall make efforts to explore options for performing maintenance work on the two tree improvement sites located on the Nipissing Forest. The Company shall also determine if these facilities could be utilized as sources of genetically improved seed for use with their renewal program.

Independent Forest Audit – Record of Finding

Recommendation # 8

Principle 4. Plan Assessment and Implementation

Criterion 4.4 Renewal - Renewal operations must be conducted in compliance with all laws and regulations including the CFSA, approved activities of the FMP including SGRs, AWS and FOPs.

Procedure(s) 4.4.1 - Review and assess in the field the implementation of approved renewal operations ... assess the effectiveness of renewal prescriptions.

Background Information and Summary of Evidence: One matter of mild concern to the auditors was the apparent lost opportunity to restore white and red pine on sites that may be ideally suited to these species. This observation arises from sites that were inspected in the McConnell Lakes area, comprised of deep, coarse sandy soils, where the renewal prescription had been changed to allow natural renewal rather than making the effort to artificially treat these sites to establish white or red pine. Lack of funds was cited as a reason for not restoring these sites.

Discussion: These sites are now returning to a mixedwood condition which predominantly includes white birch, poplar, and scattered jack pine, along with broadleaf competition. The auditors recognize that financing can place constraints on the renewal program. However, given that one of the objectives in the 2009 FMP is to restore white and red pine on the landscape (Management Objective #6), alternative or additional funding sources could be sought to take advantage of these ideal situations.

Conclusion: The auditors believe that the Company should take full advantage of situations where sites ideally suited for restoring white and red pine become available for treatments. The Company is encouraged to seek out additional funding to assist in realizing their restoration goals as stated in the 2009 FMP.

Recommendation 8: Nipissing Forest Resource Management Inc. shall seek out additional funding sources to assist in its efforts to restore white and red pine on sites that are ideally suited for growing these species.

Independent Forest Audit – Record of Finding

Recommendation # 9

Principle 4. Plan Assessment and Implementation

Criterion 4.7 Access – Road construction, various types of water crossings including crossing structures, road monitoring, maintenance, aggregates and any other access activities must be conducted in compliance with all laws and regulations, including the CFSA, and approved activities of the FMP and AWS.

Procedure(s) 4.7.1 Review and assess in the field the implementation of access activities... assess whether roads... provide for public and operator safety.

Background Information and Summary of Evidence: One issue of concern that emerged during the audit was public safety on the McConnell Lakes Road, which had been inspected by the auditors during the field visit. The McConnell Lakes area is a popular Crown land camping and day-use area among local recreationists and receives heavy hunting, fishing, and tourism use. The area contains a complex of 35 lakes that is described as one of the most popular recreation areas in the North Bay District, boasting an excellent cold water fishery, and attractive beaches and forests. Under Ontario’s Living Legacy, an old growth pine area, two conservation reserves, and four Enhanced Management Areas were established here in recognition of its high scientific and recreation values. The location encompasses four townships in the north-east corner of the Nipissing Forest. It has received its own designation under the Crown Land Use Policy Atlas and is known as the McConnell Lakes Recreational Area and Access Road. The Atlas provides land use direction for the area and describes the acceptable activities that are permitted. Due to its popularity, the roads in the McConnell Lakes area can receive considerable traffic.

Discussion: The auditors found certain locations within the main road network where visibility was impaired by brush growing along the roadside. It was also noticed that increased signage would have been helpful in notifying drivers about upcoming road hazards, such as sharp curves, and advising them to slow down or keep right. There were at least two occasions during the field tour when audit crews avoided possible danger by driving defensively.

Conclusion: It is understood that responsibility for the McConnell Lakes Road system is shared between OMNR and NFRM. The auditors recommend that both organizations work cooperatively to ascertain probable safety hazards in the road system that could benefit with increased signage and to take the necessary remedial measures to improve visibility where it has become impaired due to excessive vegetation along the roadside.

Recommendation 9: In the interest of public safety, Ontario Ministry of Natural Resources North Bay District and Nipissing Forest Resource Management Inc. shall work cooperatively to identify and address probable safety hazards in the road system by employing appropriate remedial measures to reduce such hazards.

Independent Forest Audit – Record of Finding

Recommendation # 10

Principle 6. Monitoring

Criterion 6.2 SFL Holder Compliance Planning and Monitoring - To review and assess whether an SFL compliance plan has been developed and implemented to effectively monitor program compliance and effectiveness in accordance with the conditions of the SFL, the FMPM and FIM, including standards established by the Minister.

Procedure(s) 6.2.1.4 Examine whether the SFL has continued to maintain their overall forest management oversight role and has provided for the educations and training of workers and overlapping licensees.

Background Information and Summary of Evidence: After examining the non-compliance reports and correspondence, the auditors are generally satisfied that the assessments and remedial actions determined by the OMNR were reasonable and appropriate for the circumstances. The auditors noted that a number of procedural and policy revisions have been adopted in the most recent version of the Forest Compliance Handbook (2010), particularly with the elements related to issue management. Some of these changes have a significant impact on how issues are addressed and managed.

Discussion: Although considerable training was provided with the release of the revised handbook, some of the compliance inspectors that were interviewed admitted that they could benefit from additional training since there were significant changes in the new version compared to previous editions.

Conclusion: The auditors feel that OMNR and SFL staff, as well as other individuals (e.g., overlapping licensees) involved with the compliance monitoring programs on the Nipissing Forest, may all gain from additional training on the application of the revised procedures outlined in the handbook. Such training will help ensure effective delivery and implementation of the compliance monitoring program.

Recommendation 10: Corporate Ontario Ministry of Natural Resources shall arrange to provide additional training to all individuals involved with the compliance monitoring programs on the Nipissing Forest with regard to the use of the Forest Operations Inspection Program in light of the procedural and policy changes adopted in the Forest Compliance Handbook (2010).

Independent Forest Audit – Record of Finding

Recommendation # 11

Principle 6. Monitoring

Criterion 6.3 Silviculture Standards and Assessment Program - To review and assess whether an effective program exists to assess area that is successfully regenerated to the projected forest unit (silvicultural success) or to another forest unit (regeneration success) in accordance with the applicable FMPM, FIM, FOSM and SEMMO.

Procedure(s) 6.3.3 Assess the actual level of the overall monitoring program including whether the amount of area eligible for survey is consistent with past levels of harvest and whether all areas are being addressed.

Background Information and Summary of Evidence: The auditors are satisfied that NFRM maintains a robust set of methodologies for monitoring silviculture effectiveness, but are somewhat concerned that the actual level of monitoring has not been keeping pace with the levels projected in the FMP and not quite keeping pace with the level of harvest and renewal over the past 10 years (e.g., harvest rates over the past 10 years have been approximately 4,900 ha/yr, renewal rates are 5,900 ha/year, and FTG survey levels are 2,000 ha/yr). The Year 10 (2008-09) Annual Report recognizes the shortfall in the regeneration assessment effort, but does not outline a clear action for addressing this deficiency. Company staff are aware of this assessment gap and are making efforts to narrow it.

Discussion: The rate of annual achievement and assessment effort has not kept pace with FMP forecasts, which reflects the reduced harvest levels and renewal levels (relative to FMP targets) that have occurred over the same period. However, the assessment efforts appear not to be keeping pace with the level of harvest and renewal in absolute terms, as noted above.

Conclusion: The auditors believe that additional effort may be needed to ensure that actual assessment levels are maintained at levels that are more closely aligned with harvest and renewal levels. The auditors recognize recent effort by the Company to direct resources to fill this assessment gap, and its efforts to intensively survey many post-seed cut shelterwood areas. However, the auditors believe that even more resources may be needed to ensure that FMP commitments are achieved. During the past two years, the effort to assess FTG status continues to amount to approximately 2,000 ha/yr but should be closer to 4,000-6,000 ha/yr.

Recommendation 11: Nipissing Forest Resource Management Inc. shall ensure that adequate resources are available to more closely align the level of regeneration assessment to the level projected in the approved forest management plan.

Independent Forest Audit – Record of Finding

Recommendation # 12

Principle 6. Monitoring

Criterion 6.3 Silviculture Standards and Assessment Program - To review and assess whether an effective program exists to assess area that is successfully regenerated to the projected forest unit (silvicultural success) or to another forest unit (regeneration success) in accordance with the applicable FMPM, FIM, FOSM and SEMMO.

Procedure(s) 6.3.3 Assess the actual level of the overall monitoring program including whether the amount of area eligible for survey is consistent with past levels of harvest and whether all areas are being addressed.

Background Information and Summary of Evidence: North Bay District conducted silviculture effectiveness monitoring audit assessments over the 2006-2010 period on the areas declared FTG by NFRM. The audits were conducted on areas managed under even-aged systems (i.e., shelterwood and clearcuts). Representative samples of 5% and 10% were selected from areas declared FTG by NFRM for selected years. These audits conducted by the District are part of a wider silvicultural effectiveness monitoring audit program being conducted by OMNR across the province and coordinated through the Regional offices. A report of the audit findings was prepared annually, combining the results from assessments completed on the two management units situated in the North Bay District.

Discussion: The reports produced for the audits were of mixed quality and did not provide much explanatory text. For example, the 2006 and 2007 reports did not prove to be particularly informative nor was there much text provided to explain the purpose of some of the tables. Some analysis could not be undertaken due to software issues and the intended analysis was never revisited. In the 2008 report, the utility of some results was questioned by the report authors, due to the small sample size which did not provide reliable confidence limits. Reports produced in more recent years have improved in quality. Because of the limited datasets, it is difficult for the auditors to draw conclusions regarding the general accuracy of the OMNR District's FTG audit results. However, it would be useful for OMNR to share its results for specific stands with NFRM, particularly where there are noticeable discrepancies, to determine if adjustments to the inventory are warranted.

Conclusion: Despite the variable quality of the silvicultural effectiveness monitoring audit reports, the auditors believe that there is merit in having OMNR's results shared with the Company, if only to initiate discussions in those cases where discrepancies in the findings for particular blocks/stands are being found.

Recommendation 12: Ontario Ministry of Natural Resources North Bay District shall share the silviculture effectiveness monitoring audit reports it produces annually with Nipissing Forest Resource Management Inc. and discuss the report findings with the Company.

Independent Forest Audit – Record of Finding

Recommendation # 13

Principle 6. Monitoring

Criterion 6.5 Annual Report - To determine whether the annual reports have been prepared in accordance with the applicable FMPM. Assess whether these reports accurately reflect the implemented activities and whether they effectively assess progress and any associated implications related to the achievement of management objectives.

Procedure(s) 6.5.2 Examine whether the report assesses progress towards the objectives and targets identified in the FMP, explains any significant deviations, between scheduled/planned activity versus the actual activity and assesses the potential implications on future operations.

Background Information and Summary of Evidence: Overall, the annual reports are generally well-written. Only a few deficiencies, which the auditors considered very minor and hardly detracted from the overall quality of the reports, were found under this criterion. In the auditors' opinion, the analysis and discussion presented in the annual reports, including the Year 10 (2008-2009) Annual Report, met the requirements of the 2004 FMPM and 2009 FMPM, as applicable. The only significant criticism the auditors have with the annual reports specifically pertains to the Year 10 (2008-2009) Annual Report. Sprinkled throughout the report are a number of comments and statements that could be construed as recommendations for future action by NFRM. An example is the sentence on page 37 where it is stated that "NFRM intends to conduct a supplementary analysis to determine the current amount of outstanding artificial regeneration work." Such statements are well-intentioned and would likely lead to improvements in the sustainable management of the Nipissing Forest.

Discussion: Unfortunately, these statements of recommended actions could be easily overlooked when buried in the pages of text that often comprise a weighty document such as the Year 10 Annual Report.

Conclusion: To ensure that these recommended courses of action do not become lost, the auditors would recommend that such statements be clearly highlighted or emphasized in the text of the Year 10 Annual Report, with perhaps a summary of the recommendations included at the end of the report. This section would add tremendous utility to the annual report document.

Recommendation 13: Nipissing Forest Resource Management Inc. shall ensure that in future reports, where their purpose is to evaluate past performance (e.g., Year 10 Annual Report), statements that are intended to stand as recommendations should be clearly highlighted in the report text.

Independent Forest Audit – Record of Finding

Recommendation # 14

Principle 6. - Monitoring

Criterion 6.5 Annual Report - To determine whether the annual reports have been prepared in accordance with the applicable FMPM. Assess whether these reports accurately reflect the implemented activities and whether they effectively assess progress and any associated implications related to the achievement of management objectives.

Procedure(s) 6.5.4 Review whether the OMNR took the opportunity to review the annual report for completeness and accuracy, whether the plan author addressed any resulting comments, and if a revised report was submitted.

Background Information and Summary of Evidence: Ontario Ministry of Natural Resources provides staff with regularly updated direction regarding the review of annual reports. The direction applicable to the annual reports produced during the audit term is embodied in the 2004 FMPM and 2009 FMPM. The annual report review requirements under both FMPMs are very similar. Under both FMPMs, the OMNR District and Region must review the annual reports in specified milestone years (e.g., Year 3, Year 7, and Year 10) but have the option of accepting the annual report "as is" in other reporting years.

Discussion: The records indicate that OMNR elected to review only two of the four annual reports which had been submitted to date by NFRM for the 2006-2011 audit term. The Year 8 (2006-2007) and Year 9 (2007-2008) Annual Reports were accepted as submitted. However, the review conducted for the Year 10 (2008-09) Annual Report, which is a mandatory review according to the 2009 FMPM, was not completed by OMNR North Bay District, nor was it carried out by OMNR Northeast Region. The Year 10 Annual Report was actually accepted as submitted without the mandatory review being completed. North Bay District staff stated that they did not have adequate resources available to them to complete the Year 10 review.

Conclusion: The 2009 FMPM contains specific direction regarding the submission and review of the Year 3, Year 7, and Year 10 annual reports. The auditors are directing OMNR to complete its review of the Year 10 (2008-2009) Annual Report in accordance with the direction outlined in the 2009 FMPM. Furthermore, OMNR North Bay District shall ensure that sufficient resources are available to ensure that future mandatory reviews of annual reports are completed in accordance with the applicable requirements.

Recommendation 14: Ontario Ministry of Natural Resources North Bay District shall complete its review of the Year 10 (2008-2009) Annual Report in accordance with the direction outlined in the 2009 Forest Management Planning Manual. Furthermore, they shall ensure that sufficient resources are available to ensure that future mandatory reviews of annual reports are completed in accordance with the applicable requirements.

APPENDIX 2 – ACHIEVEMENT OF MANAGEMENT OBJECTIVES

Table 3. Review of Achievement of 2004 FMP Objectives.

1.0 Forest Diversity Objectives	Objectives	Auditor Comment
1.1 Forest Composition	Move towards a species composition distribution more similar to that at the time of pre-logging and pre-fire suppression	With the exception of the white birch forest unit, all have moved towards the distribution pattern described as pre-logging and pre-fire suppression. Underharvest has resulted in one forest unit ageing. If full harvest was achievable, this indicator would be met completely. As it is, the auditors conclude that achievement of this objective is reasonable, given the timber market conditions on the Forest.
	Maintain or increase the red oak component in stands where it currently occurs	The red oak component in the Forest is being maintained. The Company is achieving uncommon success in achieving this objective. Their red oak silviculture program was innovative, and based on field observations, effective. The objective has been met.
	For the mixed conifer lowland forest unit, ensure that the proportion of spruce and cedar remain relatively similar for the forest unit as a whole	Field observations and FTG assessment support a finding that this objective has been met.
1.2 Age Class	Move towards a forest with a more even amount of area in each age class, with relatively less area in older forests	All units except for white birch are moving towards this target. As in the case noted above, underutilized harvest is the determinant for this forest unit. The auditors conclude that achievement of this objective is reasonable, given the timber market conditions on the Forest.
1.3 Old Growth	To double the amount of area in the old growth age classes in each forest unit	All units are moving towards achievement of this objective, with the exception of hemlock. The

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		Year 10 Annual Report indicates the apparent hemlock decline is probably due to misinterpreted inventory. For this reason, the auditors conclude the objective has been met.
	Increase the amount of old growth areas that occur in large patch sizes	There is difficulty in assessing the objective as the assumptions that supported the 2004 FMP were not well documented. However, assessment completed in support of the 2009 FMP show larger patches of old growth developing on the Forest over the next ten years. Given the weakness of the data supporting the original objective, the auditors conclude that the Forest appears to be moving towards this objective.
	The stand level objective is to retain old growth features in stands when conducting harvesting operations	The auditors witnessed old large residual trees left on virtually every shelterwood or selection harvest site. The objective is being met.
2. Social and Economic Objectives		
2.1 Harvest Levels	Provide a sustainable, continuous and predictable wood supply from the forest that will meet, as closely as possible and for as long as is possible, the current recognized industrial demand of the forest	The SFL has consistently planned and predicted an available harvest supply that exceeds industrial demand. The current industrial demand has been met. The objective is met.
2.2 First Nation and Aboriginal Community Social and Economic Objectives	For First Nation and Aboriginal Communities to be involved in forest management and to benefit economically through partnerships, employment opportunities and new business relationships	First Nations silvicultural contracts decreased from \$432,000 per year at the beginning with the 2004 FMP to \$409,783 at the end of the five year period. This was relatively consistent given the low harvest levels on the Forest. There remains 8.1% of harvest volume available to First Nation communities. This objective has been met.
2.3 Recreation	Minimize the potential impact of forest	The Company has been a

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	operations on recreation areas that are identified on values maps	provincial leader in reaching out to recreational operations to ensure that values are mapped. Area of concern implementation observed on the field audit was excellent. The objective has been met.
3 Objectives for Values Dependent on Forest Cover	Maintain habitat and protect critical sites for any vulnerable, threatened, endangered or species of special consideration known to occur on the Nipissing Forest	The <i>Endangered Species Act</i> dictates that Blanding's turtle will become a species with a habitat regulation in 2013. Currently it receives "species protection", a more general level of protection for individual animals. There are no sites where forest operations are occurring near known Blanding's turtle habitat. Habitat assessments are proceeding far enough in advance of the forest operations that there should be no overlap or conflict between the operations and Blanding's turtle habitat. The objective has been met.
	Maintain the quality and quantity of moose habitat over the five year term of the plan	The Company has increased protection targets for moose late wintering habitat (the limiting habitat type for moose on the Forest) from 5% in the 1999 FMP, to 12% in the 2004 FMP, and 10-15% in the 2009 FMP. There is still a forecast reduction in carrying capacity for moose so, in that regard, the objective has not been met. The objective is actively managed and it is evident that, within the influence of harvest operations, habitat will be maintained and, over a longer term, increased.
	Maintain the habitat, especially the quality and quantity of winter cover, for deer in the Loring Deer Yard	The Company has actively managed the Loring Deer Yard. The quantity is being

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		maintained. The objective has been met.
	Provide habitat for species that benefit from shoreline disturbance such as beaver and mink	The Company has initiated cut to shore activities. The objective has been met.
	Protect water quality and fish habitat within watercourses and water bodies affected by forest management	The auditors inspected water crossing and riparian AOCs throughout the audit. In every case they were effectively implemented. The objective has been met.
4. Silvicultural Objectives	Ensure silvicultural activities create the desired future forest condition	The auditors witnessed an innovative and effective silviculture program. Individual block treatments were consistent with FOPs and SGRs. The objective has been met.
	Conduct enhanced forest management activities on the Nipissing Forest	Commercial thinning targets were not met, as salvage operations and poor markets flooded the red pine market and drove the cost of commercial thinning material to an unacceptably high level. There was success in treated yellow birch stands. As noted, other silvicultural activities were very good. The objective has been met within the constraints imposed by sub-optimal harvest utilization.
	Develop a comprehensive silvicultural effectiveness monitoring program	The auditors witnessed a silvicultural effectiveness monitoring program that was uncommonly robust. The Company has put a significant effort into upgrading its performance in this area. Quantified assessments are commonly completed. This objective has been met.

APPENDIX 3 – COMPLIANCE WITH CONTRACTUAL OBLIGATIONS

Licence Condition	Licence Holder Performance
Payment of Forestry Futures and Ontario Crown charges	The Company's payments are up to date as of March 31, 2011.
Wood supply commitments, memoranda-of-agreement, sharing arrangements, special conditions	The SFL Appendix E (Wood Supply Commitments) includes specific direction to make available annually specified volumes to six facilities. None have consumed their maximum allotment in any one year and all had volume available at the end of the audit period.
Preparation of FMP, AWS and annual reports; abiding by the FMP, and all other requirements of the FMPM and CFSA	Preparation of the FMP, AWS, and annual reports were completed in accordance with the requirements of the FMPM.
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with the Forest Information Manual	The Company has met the requirements of the Forest Information Manual.
Wasteful practices not to be committed	The auditors did not observe wasteful practices other than those reported in compliance reports. In general, harvest sites were clean of industrial garbage and utilization of softwood species was very good.
Natural disturbance and salvage SFL conditions must be followed	The license conditions regarding natural disturbance and salvage harvesting were followed.
Protection of the licence area from pest damage, participation in pest control programs	No pest management programs were completed on this Forest. Harvest operations were conducted in areas defoliated by spruce budworm.
Withdrawals from licence area	There was a withdrawal of area on June 14, 2006 to create an Ontario Living Legacy Area.
Audit action plan and status report	The action plan dealt with each of the 31 recommendations from the previous independent forest audit. The audit team was impressed with the thoroughness of the response from OMNR and the Company to the last independent forest audit. More detailed comments follow this table.
Payment of forest renewal charges to Forest Renewal Trust	Payment of forest renewal charges to the Forest Renewal Trust met the required minimum balance as of March 31, for each of the five years within the scope of the audit.
Forest Renewal Trust eligible silviculture work	Field inspections of the 2009-2010 work confirmed that the silvicultural operations were consistent with forest operations prescriptions and were eligible for reimbursement from the trust fund. Maps and records were available and were consistent with invoices submitted.
Forest Renewal Trust forest renewal charge	The renewal rates were reviewed and adjusted to

analysis	ensure sufficient funds were available to meet the requirements of the silvicultural program. The auditors note Recommendation 7 to secure additional funding to restore red and white pine.
Forest Renewal Trust account minimum balance	Payment of forest renewal charges to the Forest Renewal Trust met the required minimum balance in each year of the audit term.
Silviculture standards and assessment program	Silvicultural standards were maintained at an acceptable level. The Company has accelerated its efforts at monitoring the effectiveness of the silvicultural program, partially in response to a finding in the 2006 independent forest audit.
Aboriginal Opportunities	Opportunities have been provided to the First Nation/Aboriginal communities. The First Nations/Aboriginal communities have about 8% of the total harvest share. Dokis First Nation has a small harvest share (1.8% of the AHA) on the Nipissing Forest, which it is not currently using. Dokis has permitted other First Nation communities to harvest its area share on the Nipissing Forest at present. Nipissing First Nation also has an area share (3% of the AHA) and has historically logged on the Forest. Nipissing First Nation also has had some silvicultural opportunities. Both Antoine (1.1% of the AHA) and the North/Bay Algonquins (2% of the AHA) harvest their area shares on the Forest and indicated a desire to obtain a greater share, whether it be temporarily or permanently.
Preparation of compliance plan	Preparation of the compliance plan met the contractual obligations.
Internal compliance prevention/education program	The internal compliance program met contractual requirements.
Compliance inspections and reporting; compliance with compliance plan	Compliance inspections by the Company were well done.
SFL forestry operations on mining claims	Notices were provided to all mining claim holders with operations within the Nipissing Forest.

Review of Recommendations from Previous Audits

The previous independent forest audit was completed in 2006. The audit identified 33 recommendations.

This audit reviewed the response of the Company and the OMNR to the previous audit report. It is clear that the recommendations and suggestions identified in the audit report have been carefully considered by both the OMNR and the Company. The auditors were impressed with the thoroughness of the response generated to the audit report.

The previous audit included four recommendations aimed at improving the effectiveness of the LCC. The LCC has filled some outstanding vacancies and has taken steps to improve the participation rate on this voluntary committee. The District Manager has attended two LCC meetings per year as identified in the action plan. Training support for LCC members has been improved.

The OMNR has identified a work plan to complete Native Values identification. Progress has been dependent on funding from OMNR Northeast Region, but it is evident.

The previous audit included 16 recommendations addressing forest management planning, including nine directed at Corporate OMNR. Corporate OMNR supplied a response but stated no action was required for three of these recommendations. The audit made three recommendations regarding wood supply allocations. The first requested a revision in the wood supply commitments to allow planning of a realistic harvest. A second requested a corporate policy to limit the proportion of any harvest component that can be committed. The response indicated there was sufficient capacity in the current FMP process to address these recommendations. A third item requested that a mechanism should be put in place to change unused wood supply commitments. The OMNR completed a wood supply competitive process that reviewed the monitoring and allocation of wood supply commitments. These changes are currently being implemented on the Forest.

Corporate OMNR was asked to provide quantitative direction regarding the role that parks and protected areas can play in meeting old growth directives. The response was contained in "FMP Planning Team Notes" provided as part of FMP training programs in 2006. A request to ensure management direction in the Landscape Guide reflects conditions in the Great Lakes-St. Lawrence was answered with a series of steps to collate and consolidate the best available science and incorporate that into the guide.

Finally, corporate OMNR was asked to provide funding to update the water body classification and continue its efforts to eliminate errors in the Crown and patent land management layers. These were partially addressed.

Other planning recommendations requested the Company and OMNR to consider managing cedar, larch, and hemlock primarily for non-timber purposes; adding a parks representative to the planning team; and lead a review of land use in the McConnell Lakes area. These have all been completed or are ongoing as of this audit.

Two recommendations directed the Company to improve the effectiveness of the silvicultural program. This current audit has confirmed that the silviculture program has been implemented effectively.

Other administrative recommendations have been wholly or partly addressed.

APPENDIX 4 – AUDIT PROCESS

The CFSA directs the Minister of Natural Resources to conduct a review of each SFL holder every five years to ensure that the licensee has complied with the terms and conditions of its licence. Independent forest audits, as directed through the Independent Forest Audit Process and Protocol (2011) are conducted to support this direction.

The Independent Forest Audit Process and Protocol (2011) details the scope and process requirements of an independent forest audit, and contains approximately 150 individual audit procedures. It states that the purpose of the audits is to:

- assess to what extent forest management planning activities comply with the Forest Management Planning Manual and the [*Crown Forest Sustainability*] Act;
- assess to what extent forest management planning activities comply with the Act and with the forest management plans, the manuals approved under the Act, and the applicable guides;
- assess the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit;
- compare the forest management activities carried out with those that were planned;
- assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit; and
- review and assess a licensee's compliance with the terms and conditions of the forest resources licence.

There are two key types of findings in an independent forest audit, recommendations and best management practices. A recommendation provides direction to address a noted deficiency in the planning, implementation, or monitoring of forest operations. Recommendations can be directed towards the Company and/or at the appropriate administrative level of the OMNR. The auditee must address all recommendations in follow-up actions.

If the audit team feels that an aspect of forest management is exceptional it may be identified as a best management practice. The Independent Forest Audit Process and Protocol (2011) states that “Highly effective novel approaches to various aspects of forest management may represent best practices”.

The auditors collected evidence through document review, interviews with staff and stakeholders, and physical inspection of field activities that occurred on the Nipissing Forest between April 1, 2006 and March 31, 2011. The audit process began with a pre-audit and site selection meeting in Calandar on June 28, 2011. The purpose of the meeting was for the lead auditor, the Company, and OMNR to discuss audit logistics and for the lead auditor to collect background information and documents for the audit. Following the meeting, an audit plan was finalized and distributed that outlined the audit schedule and identified the main contacts for the audit.

From June 28 to September 18, the audit team reviewed documents describing forest management activities on the Nipissing Forest. Interviews were held with a variety of interested parties. Personnel from the Company and OMNR were interviewed throughout the audit. Most of these interviews took place in person, but contact by phone and e-mail between the audit team, auditee, and the public was common.

Field site visit locations were selected to evaluate harvest, renewal, tending/maintenance, FTG operations, AOCs, road construction and maintenance, site preparation, water crossings, wildlife management activities, and other areas of special interest. Sites that had multiple audit values (e.g., renewal and AOC) were preferentially selected. Field sites were also selected to ensure that evaluations of winter and summer operations were representative of actual operations and included representative sites for the operations of each of the overlapping licensees. On-site and field audit activities occurred between September 19 and 23.

The audit team verified records and information systems at the Company and OMNR offices. The team split into two or three field crews at different times, each of which was accompanied by Company or OMNR staff. Sampling was completed through 14 person days of field inspections. Sampling continued until the auditors had viewed all of the selected sites and were satisfied that they had viewed enough sites to be confident in their assessment of field performance.

A total of 39 sites were visited. Tables 4a and 4b shows the total amount of each key activity that has occurred on the Nipissing Forest during the audit period, total area of the sites visited, and the sample size as a percentage of the total area. The audit protocol requires the audit team to sample a minimum of 10% of the area treated during the audit period, and to increase the sample where higher risk activities were identified (Table 5).

Ontario Ministry of Natural Resources commissions a third party Specified Procedures Report to assess whether the costs charged to the Forest Renewal Trust in the fiscal year April 1, 2009 to March 31, 2010 were in compliance with the terms of the Forest Renewal Trust. The Independent Forest Audit Process and Protocol (OMNR 2011) requires the auditors to conduct a field inspection of a minimum of 10% of the forest renewal activities that took place during that year. Table 4b lists the percentage of chargeable renewal activities that took place in the 2009-2010 field season that were inspected by the auditors.

Table 4a. Sampling Intensity for the Nipissing Forest Audit by Harvest Silvicultural System.

Harvest Silvicultural System	Total Actual Area Harvested (ha)	Area Selected for Site Visit During Audit (ha)	%
Clearcut	8281	1706	21%
Commercial thinning	101	45	45%
Conifer Shelterwood	4701	1813	39%
Hardwood Shelterwood	3101	591	19%
Selection	475	298	63%
<i>Total</i>	<i>16659</i>	<i>4453</i>	<i>27%</i>

Table 4b. Sampling Intensity for the Nipissing Forest Audit by Regeneration Treatment Method.

Renewal Treatment Method	Area Receiving Silvicultural Treatment from 2006-11(ha)	Area Within Sites Selected for Field Visit During Audit (ha)	%	% sampled from the 2009-2010 field season
Aerial Chemical	2573	638	24%	36%
Ground Chemical	1801	159	9%	9%
Stand Improvement	4489	1310	29%	0%
Site Preparation	3791	1497	39%	22%
Seed	5057	347	7%	9%
Plant	3713	688	19%	14%
Pre-commercial thinning	2021	433	21%	81%

Table 5. Independent Forest Audit Procedures Audited by Risk Category.

Procedures Audited, by Risk Category								
Principle	Low Risk			Medium Risk			High Risk	Comments
	Applicable (#)	Selected (#)	% Audited	Applicable (#)	Selected (#)	% Audited	Audited (#)	
1. Commitment	2	2	100	2	2	100	100	All procedures were audited
2. Public Consultation and Aboriginal Involvement	6	6	100	6	6	100	100	All procedures were audited
3. Forest Management Planning	27	27	100	27	27	100	100	All procedures were audited
4. Plan Assessment and Implementation	6	6	100	6	6	100	100	All procedures were audited
5. System Support	2	2	100	2	2	100	100	All procedures were audited
6. Monitoring	4	4	100	4	4	100	100	All procedures were audited
7. Achievement of Objectives and Forest Sustainability	5	5	100	5	5	100	100	All procedures were audited
8. Contractual Obligations	20	20	100	20	20	100	100	All procedures were audited
Totals	72	72	100	72	72	100	100	

AOC and Roads Inspections

A representative sample of AOCs was selected where operations have been conducted during the five-year period of the audit. These included a range of the various types of prescriptions for those AOCs. In all, the auditors viewed implementation of 70 AOC prescriptions in the field, along with a sample of their documentation and compliance reports in the following categories: trails and other routes 5; cultural heritage 1; water crossings (and removals) 15; cold water, warm water, or wetlands 20; park boundary 1; tourism (resource stewardship agreements and aesthetic) 6; biological: nest 6; self-sustaining trout lakes 1; moose aquatic feeding areas 4; moose and deer thermal cover 4; sample plots 1; spray buffers 6. Areas of concern examined were from both the 2004 and 2009 FMPs. As well, the auditors reviewed other wildlife-related normal operations (non AOCs). Also examined were the locations of “peninsulas and islands” required by the Natural Disturbances Pattern Emulation Guide.

There were no exceptions to any of the implementation manuals or guidelines used to develop the AOC prescriptions for the 2009 plan that applied to non-timber values (there were two silvicultural exceptions in the FMP). The audit team viewed a large number of AOC boundaries and found them appropriately located and clearly marked. Overall, there was an appropriate assignment of values protection in the 2009 FMP. It is noted again that using the Stand and Site Guide was not a requirement for this plan.

The audit team examined 15 water crossing installations or removals. Moose Thermal Cover Patches (AOC ID—MTC) were examined on several field sites.

In addition, the audit team travelled extensively on the road system in the Nipissing Forest and observed operational road conditions on primary, branch, and operational roads. The auditors inspected 50% of the new road constructed during the audit period and 35% of the viable road maintenance and improvement activities that were visible for inspection (i.e., water crossings the Road Construction and Maintenance Agreement).

The audit protocol allows the auditors to subsample procedures identified as low and medium risk in terms of contributions to the sustainability of the Forest. Given that the audit team reviewed the content, process, or outcome of each of these procedures in their assessment of those procedures deemed high risk, the auditors elected to audit all procedures pertinent to the SFL.

Summary of Consultation and Input into the Audit

General Public: A survey was sent to 870 stakeholders on August 15 using the mailing list that the OMNR District maintains for the Nipissing Forest. The audit team received 103 responses to the survey by mail, two by e-mail, and two by phone. Additionally, invitations to comment on forest management on the Nipissing Forest over the audit term were placed in two major daily newspapers and one local newspaper. The replies were generally neutral or slightly negative. There were no discernable trends in the comments other than respondents preferred not to have forest operations near recreational sites.

Local Citizens' Committee: Phone or in-person interviews were held with all members. This LCC is specific to the Nipissing Forest in terms of forest activities. For the period of the audit, the LCC was comprised of a diverse mix of individuals, including representatives from environmental/naturalist organizations, the forest products industry, loggers, the general public, aboriginal groups, cottagers, anglers and hunters, prospectors, and tourism interests.

First Nations: Five First Nations/Aboriginal communities have traditional territories and interests within the Nipissing Forest. The five are: Dokis First Nation, Nipissing First Nation, Temagami First Nation/Teme-Augama-Anishnabai and the Antoine and Mattawa/North Bay Algonquin First Nation communities. Dokis First Nation, located along the French River, has general interests in the southwestern portion of the Forest. While Dokis does have a harvest share in the Nipissing Forest, it is currently permitting other First Nation communities to utilize it. Nipissing First Nation is located on the north shore of Lake Nipissing and also has a harvest share that it utilizes at times. Temagami First Nation has an interest in the north end of the Nipissing Forest but did not participate in this audit. The Antoine Algonquins are a recognized Algonquin community located west of Mattawa that are part of the Algonquin land claim

negotiations. The Antoine Algonquins have an interest in the eastern portion of the Forest and also have a harvest share. The Mattawa/North Bay Algonquins are also a recognized Algonquin community based in Mattawa that are also part of the Algonquin land claim negotiations. They have an interest in the eastern portion of the Forest and also have a harvest share. The largest contract logger in the Forest is a member of the Mattawa/North Bay Algonquins and harvests wood for both Algonquin communities, Tembec, and as an independent operator.

The audit team conducted in-person interviews with all of the First Nation/Aboriginal communities except for Temagami, which was in the process of changing forestry managers at the time of the audit.

Ontario Ministry of Natural Resources: The OMNR District Manager, area supervisor, area biologist, area forester, and compliance technicians participated in the opening and closing meetings of the field audit. The District Manager, area forester, area biologist, and senior technicians participated in the field audit itself.

Nipissing Forest Resource Management Inc.: All staff from the Nipissing Forest Resource Management Inc. participated in the audit.

APPENDIX 5 – LIST OF ACRONYMS

AOC	Area of Concern
AHA	Available Harvest Area
AWS	Annual Work Schedule
CFSA	Crown Forest Sustainability Act
CLAAG	Careful Logging Around Advanced Growth
LCC	Local Citizens' Advisory Committee
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FTG	Free-to-grow
GIS	Geographic Information System
HPCH	High Potential Cultural Heritage
LCC	Local Citizens' Committee
NFRM	Nipissing Forest Resource Management Inc.
OMNR	Ontario Ministry of Natural Resources
OWHAM	Ontario Wildlife Habitat Analysis Model
RPF	Registered Professional Forester
SFL	Sustainable Forest License
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rules
SSTL	Self Sustaining Trout Lakes

APPENDIX 6 – AUDIT TEAM MEMBERS AND QUALIFICATIONS

Craig Howard, R.P.F., CEA (SFM) – Lead Auditor

Education: B.Sc. Forestry, University of New Brunswick, 1983.
Experience: 28 years experience in forestry, 15 years in private practice, 3 years in the OMNR.
Previous Audits: 22 Independent Forest Audits, 13 Sustainable Forest Initiative verifications, 10 Forest Stewardship Council assessments.

Mark Leschishin, R.P.F – Forester

Education: B.Sc. Forestry, Lakehead University, 1978. Dip. For. Tech., 1974.
Experience: 32 years experience in forestry in Ontario.
Previous Audits: 25 Independent Forest Audits, one Forest Stewardship Council assessment.

Tom Clark – Ecologist

Education: M.Sc., H.B.Sc.
Experience: Forest ecologist and biologist with 30 years experience in habitat ecology.
Previous Audits: 26 Independent Forest Audits, and numerous Forest Stewardship Council assessments and audits.

Phil Shantz – Socio-economist

Education: M.E.S, R.P.P.
Experience: Registered professional planner with 18 years experience in forest auditing/certification, resource and socio-economics, environmental assessment and public consultation.
Previous Audits: 16 Independent Forest Audits, 15 Forest Stewardship Council assessments.

Brian Callaghan, R.P.F. – Forest Management Planning Analyst

Education: B.Sc.F., University of Toronto, 1982.
Experience: 25 years experience in forestry in Ontario.
Previous Audits: 24 Independent Forest Audits, 30 Sustainable Forest Initiative verifications, 12 Forest Stewardship Council assessments.

