Dog River-Matawin Forest

Independent Forest Audit

2010 – 2015

Arbex Forest Resource Consultants Ltd.

October, 2015

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1.0. Executive Summary

This report presents the findings of an Independent Forest Audit (IFA) of the Dog River-Matawin Forest (DRMF) conducted by Arbex Forest Resource Consultants Ltd. for the period of April 1, 2010 to March 31, 2015. The DRMF is managed by Resolute FP Canada Inc. (Resolute[1]) under the authority of Sustainable Forest Licence (SFL) # 542459. The Forest lies within the Ontario Ministry of Natural Resources and Forestry (MNRF) Thunder Bay District in the Northwestern Region. One Local Citizens Committee (LCC) is associated with the Forest (Dog-River Matawin Citizens Advisory Committee (DRMCAC)). The Forest was certified by the Sustainable Forest Initiative (SFI) throughout the audit period. A Forest Stewardship Council (FSC) certificate was suspended in January 2014.

Procedures and criteria for the IFA are specified in the 2015 Independent Forest Audit Process and Protocol (IFAPP). The audit scope included the implementation of years 2-6 of the 2009-2019 Forest Management Plan (FMP) and the development of the Phase II plan. FMP documents were reviewed in relation to relevant provincial legislation, policy guidelines and Forest Management Planning Manual (FMPM) requirements. Audit field site examinations were completed by helicopter and truck in June 2015.

Public input to the audit process, was solicited by notices in local media (Thunder Bay Source) and a mail out survey to approximately 10% of the individuals/organizations on the 2009 FMP mailing list. Local Citizens Committee (LCC) members, First Nations communities and Métis organizations (with an interest in the DRMF) were notified of the audit and invited to participate in the field audit and/or express their views on forest management during the audit term. Individuals, businesses and organizations involved with or impacted by forest management activities were also interviewed.

Reductions in conifer harvest levels are projected over several future management terms. In the 2009 Phase I and II FMPs it was not possible to meet desired levels for all management objectives given the existing age class area imbalance and societal requirements to achieve an acceptable balance between wood and wildlife habitat supply. While harvest levels and habitat supply for some wildlife species will be below preferred levels for varying periods of time, the projected declines are driven by past harvest and disturbance patterns on a landscape that has historically supported an industrial forest. The inability to achieve desirable levels for all management objectives does have some social and economic implications with respect to the achievement of forest sustainability over the short-to-midterm. However, we conclude that targets for timber production were appropriately derived based on a modelled compromise between wood supply and wildlife habitat requirements. Consistent with the LTMD, available harvest levels decline with declining wood supply over future management terms. Non-timber uses were appropriately considered in the strategic and operational planning processes. It is our opinion that the measures adopted were appropriate and

[1] The acronyms Resolute and RFP are used interchangeably in this report

necessary to maintain the operational viability of the industry and to achieve a balance between timber objectives and other FMP objectives. We concluded that long term forest sustainability was not at risk as a result of these planning initiatives.

We found the DRMF to be well-managed. An effective silviculture program was delivered, Forest Management Planning Manual (FMPM) requirements for planning and operations were met, FMP objective achievement levels are at or are within an acceptable range or are moving toward the planned levels for the associated indicators (e.g. wildlife habitat). The SFL holder, (with minor exceptions), met its contractual obligations for the audit term. The MNRF met its responsibilities and obligations as administrator of the Forest.

This audit recommends that Resolute FP assess areas treated by aerial tending to ensure that treatments are effective in controlling competing vegetation, and ensure that FMPM documents are submitted in accordance with the mandatory reporting schedules. It is also recommended that signed copies of FMPM documents are retained at MNRF and Resolute Offices.

We also provide a recommendation to the MNRF Crown Forests and Lands Policy Branch to evaluate the adoption of broadly defined forest type groupings for the reporting of silviculture success. We also recommend that the Forest Resources Inventory Unit ensure that Forest Resource Inventory (FRI) information is better synchronized with the forest management planning process.

Based on our document reviews, interviews and field site inspections the audit team concluded that forest sustainability as assessed through the Independent Forest Audit Process and Protocol (IFAPP) is being achieved, and that the Dog River-Matawin Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit. We recommend that the Minister extend the term of the Sustainable Forest Licence # 542459 for a further five years.

2.0. Table of Recommendations

TABLE 1. RECOMMENDATIONS

Conclusion:
The audit team concludes that management of the Dog River-Matawin Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Resolute FP Canada Inc. 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 the Sustainable Forest Licence # 542459 for a further five years.

Recommendations Directed to Resolute FP Inc.
Recommendation # 2 Resolute FP should assess all areas treated with aerial herbicide applications between 2011 and 2013 to ascertain if silviculture interventions are required to release crop trees and/or ensure that the SGRs are met.
Recommendations Directed to the Thunder Bay District MNRF
Recommendation # 4 The MNRF District Manager must ensure that the Action Plan is prepared in accordance with the schedule specified in the Independent Forest Audit Process and Protocol.
Recommendations Directed to the Crown Forests and Lands Policy Branch
Recommendation # 1 The Forest Resources Inventory Unit must ensure the timely delivery of FRI products in order to facilitate the incorporation of more current forest resource information in forest management plans. Recommendation # 3 The Crown Forests and Lands Policy Branch should evaluate the adoption of broadly defined forest type groups for the reporting of silviculture success.
Recommendations directed jointly to Resolute FP and the MNRF District Office
Recommendation # 5 Resolute FP and the MNRF District must retain the signed AWS approval page on file in their offices.

3.0. Introduction

This report presents the findings of an Independent Forest Audit (IFA) of the Dog River-Matawin Forest (DRMF) conducted by Arbex Forest Resource Consultants Ltd. for the period of April 1, 2010 to March 31, 2015.

The DRMF is managed by Resolute FP Canada Inc. (Resolute) under the authority of Sustainable Forest Licence (SFL) # 542459. The Forest is administered by the Ontario Ministry of Natural Resources and Forestry (MNRF) Thunder Bay District. The DRMF was certified by the Sustainable Forest Initiative (SFI) throughout the audit period. Certification by the Forest Stewardship Council (FSC) was suspended in January 2014.

3.1. Audit Process

The Crown Forest Sustainability Act (CFSA) requires that all Sustainable Forest Licences (SFLs) and Crown Management Units (CMUs) be audited every five years by an independent auditor. Arbex Forest Resource Consultants Ltd. undertook the IFA utilizing a four-person team. Profiles of the audit team members, their qualifications and responsibilities are provided in Appendix 6.

The audit reviews the applicable Forest Management Plans (FMP) in relation to relevant provincial legislation, policy guidelines and Forest Management Planning Manual (FMPM) requirements. The audit reviews whether actual results in the field are comparable with planned results and determines if the results were accurately reported. The results of each audit procedure are not reported on separately but collectively provide the basis for reporting the outcome of the audit. Recommendations within the report "*set out a high level directional approach to address a finding of non-conformance*" [2]. In some instances the audit team may develop recommendations to address situations where "*a critical lack of effectiveness in forest management activities is perceived even though no non-conformance with the law or policy has been observe*d"[3]. A "Best Practice" is reported when the audit team finds the forest manager has implemented a highly effective and novel approach to forest management or when established forest management practices achieve remarkable success. A further discussion of the audit process is provided in Appendix 4.

The procedures and criteria for the IFA are specified in the 2015 Independent Forest Audit Process and Protocol (IFAPP). The audit scope covers five years implementation (years 2-6) of the 2009-2019 FMP and examines the development of the Phase II FMP.

3.2. Management Unit Description

The DRMF contains forest species and conditions associated with both the Boreal Forest and Great Lakes-St Lawrence (GLSL) Forest Regions with mixedwood cover types (mixed conifer upland, mixed conifer lowland and mixedwood) being the most

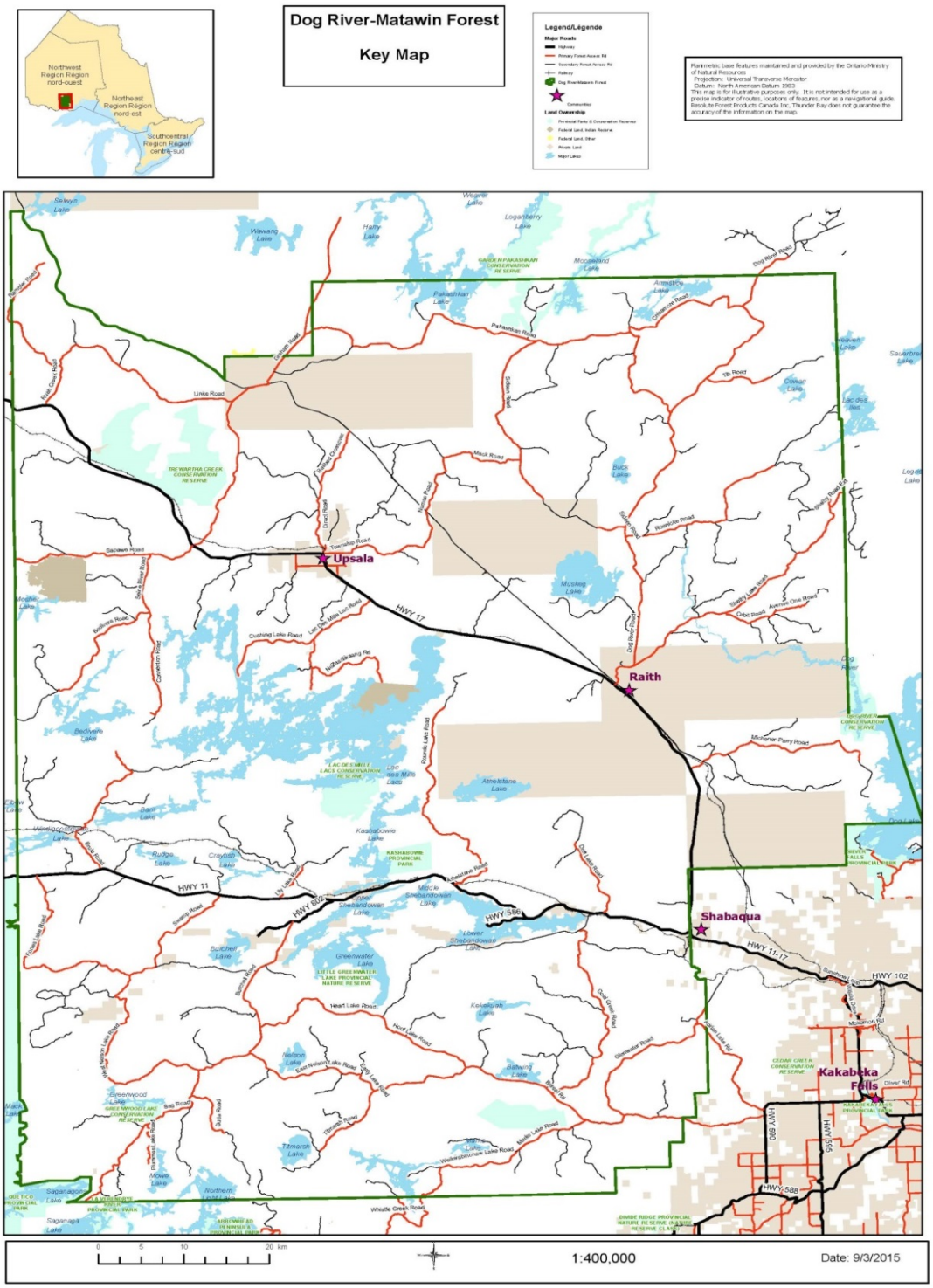
[2] 2015 Independent Forest Audit Process and Protocol.
[3] Ibid

prevalent. Common tree species include black spruce, jack pine, trembling aspen and white birch. Past harvesting and fire control practices have significantly influenced species composition, age class structure, disturbance patterns and residual stand structures. A diversity of wildlife species typical to the southern boreal forest and northern fringe of the GLSL forest region inhabit the Forest. Species at Risk (SAR) associated with the DRMF include the bald eagle (species of special concern) and the golden eagle (endangered). The 2009 FMP includes a caution that if values associated with woodland caribou are identified those values would be accommodated through Area of Concern (AOC) prescriptions.

There are two aboriginal communities with an interest in forest management activities in the Forest; The Fort William (FW) First Nation (not located within the Forest boundaries) and the Lac des Milles Lac (LDML) First Nation. Two Métis organizations have also expressed an interest in the Forest on behalf their constituents; Red Sky Métis Independent Nation and the Métis Nation of Ontario – Thunder Bay Métis Council.

The DRMF is well accessed by provincial highways and forest access roads and is used extensively by the public. There are no access restrictions on primary roads but access restrictions are implemented on some branch and operational roads in the vicinity of tourism facilities.

There are 44 tourist outfitters associated with the DRMF, which cater to anglers, hunters, outdoor recreationalists and eco-tourists. Most operations are road accessible although there are a few restricted access outpost camps.



MAP 1. LOCATION OF THE DRMF (SOURCE: RFP).

The area of Crown managed land is 907,231 ha of which 78 % (704,977 ha) is classified as production forest area (Table 2). Water and non-forested land account for

approximately 13% of the managed Crown land base (117,165 ha). The Trends Analysis Report indicates that the area of non-productive, barren and scattered (B&S) and not satisfactorily regenerated (NSR) land has increased over time largely due to a change of definition for the land categories in the 2009 FMPM. In the current FMP approximately 10% (73,713 ha) of the production forest land base is categorized as "below regeneration standards". This area consists largely of lands harvested between 55 and 75 years ago when the renewal of harvested areas had a lesser priority as a timber management practice. The application of future forest management interventions within these stands will be dependent on operational considerations (merchantable volumes, species composition, product mix etc.) and/or other resource management considerations such as the provision of forest cover for wildlife habitats, biodiversity etc.

TABLE 2. AREA SUMMARY OF MANAGED CROWN LAND BY LAND TYPE
Source: Table 1- 2012 FMP

Managed Crown Land Type	**Area (Ha)**
Water	108,921
Other Land (Grass & Meadow, Unclassified Land)	8,244
Subtotal Non-Forested Land	117,165
Non-Productive Forest Land	
Non-Productive Forest	73,321
Protection Forest[4]	11,769
Subtotal Non-Productive Forest Land	129,176
Production Forest[5]	
Forest Stands	580,925
Recent Disturbance	50,339
Below Regeneration Standards (Older Low Stocked Stands)	73,713
Subtotal Production Forest	704,977
Subtotal Forested Land	790,066
Total Crown Managed Land	907,231

[4] Protection forest land is land on which forest management activities cannot normally be practiced without incurring deleterious environmental effects because of obvious physical limitations such as steep slopes and shallow soils over bedrock.
[5] Production forest is land at various stages of growth, with no obvious physical limitations on the ability to practice forest management.

The planning inventory utilized in the development of the 2009 FMP is based on the 1996 inventory, which was updated to reflect harvest and natural depletions between 1996 and 2009. FTG survey information (where available) was utilized to provide stand attributes for stands less than 20 years of age. A new Enhanced FRI (eFRI) is scheduled for delivery in October[6] 2015.

The area occupied by provincial forest types on managed Crown land (production forest) is shown in Figure 1. The DRMF is dominated by conifer forest units which occupy approximately 67% of the managed Crown land base. Upland conifer forest units occur most frequently with jack pine being the most prevalent conifer species. Hardwood dominated stands occupy approximately 15% of the land base with the poplar forest unit being the most prevalent hardwood forest type. Mixedwood cover types occur on approximately 18% of the land base.

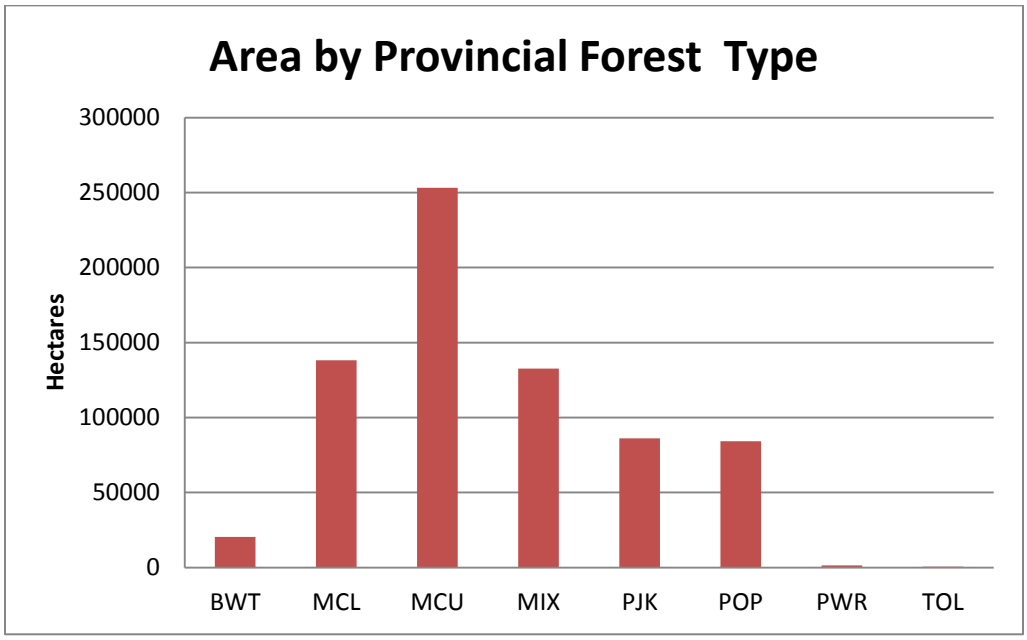


FIGURE 1. AREA OF MANAGED CROWN PRODUCTION FOREST BY PROVINCIAL FOREST TYPE
Source: FMP-2, 2009 FMP[7]

The age class area distribution of forest units is shown in Figure 2. A significant age class area imbalance occurs in the 41-60 age class and within the older age classes (101+). These imbalances have implications with respect to the provision of a balanced wood supply (the 2009-2014 harvest level was 27% below the level planned in the previous management term and further reductions in conifer harvest levels are

[6] Communication with RFP staff (September, 2015)
[7] Provincial Forest Types are as follows: BWT=White Birch/Tolerant MCL=Mixed Conifer Lowland, MCU=Mixed Conifer Upland, MIX= mixedwood PJK=Jack Pine, POP=Poplar, PWR=White and Red Pine and TOL=Tolerant Hardwoods.

anticipated (See Section 4.4). Available habitat for some wildlife species (e.g. marten and late winter moose habitat) are predicted to decline over several planning terms).

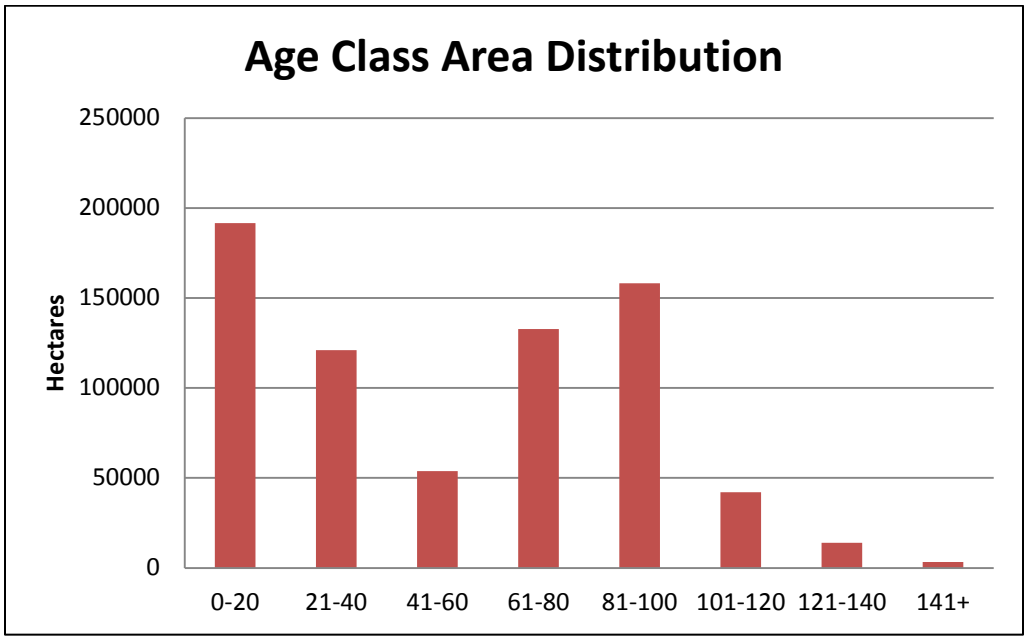


FIGURE 2. AGE CLASS AREA DISTRIBUTION (CROWN MANAGED LAND).
Source: FMP-2, 2009 FMP.

3.3. Current Issues

The previous IFA found the Forest to be well-managed and recommended that the SFL be extended for a further five year term.

Our document review and preliminary discussions with Resolute and MNRF staff identified the following specific issues for examination during the IFA:

Balance between Wildlife Habitat and Wood Supply Objectives: Desired levels for all management objectives (e.g. harvest volumes, wildlife habitat) could not achieved in the 2009 FMP due to the existing age class area imbalance.

Harvest Area Allocations: The DRMF has been extensively harvested and past forest management practices have resulted in limited flexibility for the selection of harvest blocks.

Management of Multi-aged Mixedwood Stands: As a result of past management practices and fire control large sections of the Forest are transitioning to multi-storied stand structures that are atypical to the boreal forest. Stands with multi-storied structures pose challenges for harvest operations as differing tree ages within the stand

affect the availability and economic removal of the merchantable portions of those stands.

Provision of Marten Habitat and Natural Disturbance Pattern Emulation Guidelines (NDPEG): The long history of harvesting and the implementation of past forest management guidelines (i.e. moose habitat guidelines) have resulted in the fragmentation of the forested landscape. The preponderance of smaller harvest blocks benefitted moose habitat but has been detrimental for the provision of marten habitat and achievement of NDPEG requirements.

Vintage of the Forest Resource Inventory (FRI): The FRI utilized for the production of the 2009 FMP was based on 1996 photography updated for natural and harvest depletions. Inventory related issues presented challenges for operational planning and wood supply modeling.

Poor Economic Performance of the Forestry Sector: Fluctuating markets for some species and products resulted in the underachievement of planned harvest levels and related silviculture targets.

3.4. Summary of Consultation and Input to the Audit

Details on the public consultation process related to the audit are provided in Appendix 4. Public notices including an invitation to provide comment and/or complete a questionnaire on the Arbex website was placed in the Thunder Bay Source newspaper (May 28 and June 4 , 2015).

A random sample of 80 individuals and organizations listed in the 2009 FMP mailing list received a letter and questionnaire requesting input to the audit process. An additional sample of stakeholders were contacted directly by telephone (e.g. representatives of the tourism industry, field naturalists, anglers and hunters).

The two First Nations (FNs) associated with the DRMF and local and regional Métis organizations were contacted by mail and invited to participate in the field audit and/or express their views on the forest management during the audit term. Follow-up contacts were made and interviews were held with interested respondents. One overlapping licensee was also interviewed.

Resolute and MNRF (District and Regional) staff participated in the field audit and/or were interviewed by the audit team. Representatives of the main forest management service provider[8] to RFP also participated in the field investigations and were interviewed by members of the audit team.

[8] RW Forestry Inc.

4.0. Audit Findings

4.1. Commitment

The IFAPP requires both the SFL holder and MNRF to have policy statements and display operational performance that demonstrates the organizations commitment to sustainable forest management. Resolute obtained third party certification under the Sustainable Forest Initiative (SFI) standard (CERT-0087711). This certification meets IFAPP commitment principal requirements.

MNRF policy and mission statements are prominently displayed on the MNRF website. All interviewed staff were aware of MNRF direction, sustainable forestry commitments and Codes of Practice. Our assessment is that all commitment requirements were met.

4.2. Public Consultation and Aboriginal Involvement

Standard Public Consultation

FMPM public consultation requirements for the development of the Phase II FMP, Annual Work Schedules (AWS), and Plan Amendments were met.

All constituencies we contacted indicated that they had been made aware of the FMP process and that they were provided with opportunities to become involved and to identify values. Our review of FMP correspondence and public notification and consultation files indicated that there was very limited formal comment (five documents) and that all comments were considered in the development of the Phase II plan.

Issue Resolution and Individual Environmental Assessment

Opportunities to make a request for Issue Resolution or an Individual Environmental Assessment (IEA) were made available to the public. No requests were made for either an IEA or issue resolution during the development of the Phase II plan.

Local Citizens Committee

The Dog River Matawin Citizens Advisory Committee (DRMCAC) is a long standing Local Citizens Committee (LCC) with membership appointed by the Thunder Bay MNRF District Manager. Committee members provide a comprehensive range and balance of local stakeholder and business interests. The LCC Terms of Reference are consistent with the requirements of the FMPM and were regularly reviewed and updated.

The Committee was actively involved in all aspects of the implementation of the 2009 FMP and the planning for the Phase II FMP. Minutes of committee meetings show on-going involvement providing advice and comment on the full range of plan implementation activities (e.g. Annual Work Schedules, compliance activities, road construction, etc.). The LCC appointed a sub-committee to deal with minor amendments in a timely manner. Major amendments or other amendments deemed to

be more contentious were reviewed by the full committee. For the Phase II plan, the DRMCAC had representation on the planning team, and the full committee received regular updates throughout the planning process.

Over the audit term, the DRMCAC also tabled other resource management issues (e.g. fisheries and wildlife) with the MNRF and provided valued feedback on the various issues that emerged over the audit term. It is our assessment that the LCC is well managed and was effectively engaged in the forest management planning process.

Aboriginal Involvement in Forest Management Planning

All FMPM requirements pertaining to Aboriginal involvement in the planning process were met in the development of the Phase II plan.

Aboriginal values maps were updated and utilized for the preparation of the plan and the Lac des Mille Lacs FN was represented on the DRMCAC and the Planning Team. The Fort William First Nation has traditional land use in the southern portion of the forest and the community opted for the standard public consultation approach.

The MNRF produced Condition 34 Reports[9] that met FMPM format and content requirements.

4.3 Forest Management Planning (Phase II)

When developing a Phase II FMP for the planning of operations for the second five-year term, the 2009 FMPM requires an analysis of the validity of basing planning of operations on the original (2009) LTMD. The Regional Director (RD) decision in the Year 3 Annual Report supported and endorsed the continuation of the long-term management direction for the second five-year term. Based on our review, the audit team concurs with the Regional Director's decision. The RD endorsement implied that any approved access, harvest, renewal and tending operations that were not completed during the first five-year plan term remained approved for implementation during the second five-year plan term.

The Terms of Reference (TOR) for the 2009 Phase II FMP met all FMPM requirements and was approved by the District Manager and Regional Director. The TOR was thorough and included documentation of schedules, procedures and was updated with changes during the planning process. An FMP Steering Committee was appointed, but was not required to resolve issues amongst the planning team members.

[9] Condition 34 from the Class Environmental Assessment requires the MNRF District Managers to conduct negotiations with Aboriginal peoples to identify and implement ways of achieving a more equal participation in the benefits provided through forest management planning.

Planning content and scheduling met 2009 FMPM requirements for the development of a Phase II FMP.[10] Forest management activities planned in each of the Annual Work Schedules (AWSs) were consistent with those outlined in the relevant plans.

Plan development for both the Phase I and Phase II FMPs was influenced by the landscape patterns and stand structures arising from historic fire, as well as past wildlife management policies and forest management practices. These practices resulted in large areas of the DRMF transitioning to multi-storied stand structures. These structures are atypical to the Boreal Forest and pose limitations on harvest operations since differing tree ages within the stand affect the availability and economic removal of merchantable portions of the stand. Additionally, the past implementation of the moose habitat guidelines has fragmented the forest landscape. While the preponderance of smaller harvest blocks benefitted moose, the current fragmented nature of the landscape is detrimental to the achievement of marten habitat objectives and other landscape level objectives associated with the retention of larger forest patches (i.e. NDPEG).

The current forest condition in combination with FMPM planning requirements (e.g. for the provision of wildlife habitat) resulted in the need for forest-wide distribution of harvest allocations as opposed to a more logistically efficient concentration of harvest areas, the allocation of stands which had previously been bypassed and/or age class substitutions. Many of the stands scheduled for harvest exhibited "*below average*"[11] timber quality, low merchantable volumes and/or were characterized by planners as having less than favourable conditions/economics for timber extraction. Requirements to consider the natural disturbance template also constrained the ability to allocate the available harvest area. Some minor adjustments to harvest allocations were also necessary to accommodate public concerns.

Targets for timber production were derived from a modelled compromise between wood supply and wildlife habitat requirements.[12] Depending on the wildlife species, wildlife habitat supply dropped to 30% below natural benchmark levels for 2 to 3 terms[13] and timber harvest levels are 24% below the level established in the 2005 FMP and 28% below current industrial commitments. Harvest levels are projected to decline for several decades. Timber harvests will not be at desired levels for the first 100 years of management, however, wood supply improves after Terms 4 and 5 in the Sustainable Forest Management Model (SFMM). To mitigate the projected harvest area and volume declines and to maintain the operational viability of harvest sectors it was necessary to schedule a "*significant substitution between age classes in the allocation process*" and

[10] We sampled 15% of the approximately 120 final required alterations to the 2009 Phase II FMP. We also reviewed 25% of the 49 FMP amendments and 37 AWS revisions for years 2-6 of the 2009 FMP. They were appropriate, well documented, and prepared in accordance with the requirements of the 2009 FMPM.

[11] Trends Analysis Report

[12] The provision of core marten habitat, late winter moose habitat and stand level habitat planning imposed the most significant constraints on the harvest during plan development.

[13] Typically indicators are to be within 20% of the natural range of variation.

identify high potential riparian harvest chances[14]. The area selection process for the allocation of harvest blocks is well documented in the FMP and in the opinion of the audit team was appropriate and necessary to maintain the operational viability of harvest areas (See Section 4.7).

Annual Work Schedules (AWSs) conformed to FMPM requirements, with the exception that signed copies of some of the documents could not be located in either of the auditee's offices[15]. We provide a recommendation (Recommendation # 4).

As is the case with other forest management units the delivery of FRI products is seriously out of synchrony with the forest management planning cycle. FRI information used for the preparation of the 2009 FMP was based on 1996 aerial photography with the inventory information updated for harvest depletions, FTG survey accruals and natural disturbances to 2009[16]. A new Enhanced FRI is tentatively scheduled for delivery in October 2015. Delays in the delivery of the FRI will have significant implications for the development of the next FMP; a recommendation is provided (Recommendation # 1).

The Planning team appropriately reviewed the background information and confirmed its use for the production of the forest management plan. No changes to the SGRs or operational prescriptions for Areas of Concern (AOC) were required for the development of the Phase II plan. Our field assessments confirmed that Silvicultural Ground Rules[17] (SGRs), Silvicultural Treatment Packages[18] (STPs) and Forest Operations Prescriptions (FOPs) were appropriate for the forest cover types and site conditions on the Forest.

Area of Concern (AOC) prescriptions in the 2009 FMP were reviewed and updated as required for the development of the Phase II plan. The updated AOC prescriptions appropriately incorporated updated values information and/or implemented directions provided by new or updated forest management guides (e.g. Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales). The 2009 FMPs indicate that Species at Risk (SAR) habitats were to be managed through the application of AOC prescriptions on an as encountered basis. Over the audit term, no forestry operations occurred in known SAR habitats.

Requirements for the protection of resource based tourism values were addressed through the AOC management process rather than by Resource Stewardship

[14] There is an exception to the Timber Management Guidelines for the Protection of Fish Habitat in the 2009 FMP as there is more harvesting of shorelines of lakes and streams than permitted by the guide.
[15] MNRF staff believed that all certification pages were signed but could not locate copies in the absence of a key staff member who was on leave of absence during the audit.
[16] FRI base data was 13 years old at the start of the plan and will be 23 years old at the time of plan renewal.
[17] Silvicultural Ground Rules specify the silvicultural systems and types of harvest, renewal and tending treatments that are available to manage forest cover and the type of forest that is expected to develop over time.
[18] A Silvicultural Treatment Package is the path of silvicultural treatments from the current forest condition to the future forest condition. STPs include the silvicultural system, harvest and logging method(s), renewal treatments, tending treatments and regeneration standards.

Agreements. We concluded that this was an appropriate and effective approach for protecting/maintaining tourism values.

4.4. Plan Assessment and Implementation

As indicated, the presence of numerous values and historic harvest patterns and practices contributed to forest fragmentation and age class area imbalances, which complicated plan development and the implementation of forest management activities during the audit term. Table 3 presents the planned vs. actual area treated by silvicultural activity over the audit term. A discussion of the silvicultural program is provided in the sections below.

TABLE 3. ANNUALIZED PLANNED VS. ACTUAL SILVICULTURE TREATMENTS (HECTARES) 2010-2014.

ACTIVITY	AUDIT TERM PLANNED (HA)	AUDIT TERM ACTUAL (HA)	PERCENT OF PLANNED %
HARVEST	7,108	3,887	55
REGENERATION			
NATURAL	4,965	1,625	29
PLANT	2,304	2,167	94
SEED	677	144	17
TOTAL REGENERATION	7,946	3,936	50
SITE PREPARATION			
MECHANICAL	2,168	1,701	79
CHEMICAL	109	221	202
PRESCRIBED BURN	8	349	436
TOTAL SIP	2,285	2,271	99
TENDING			
AERIAL HERBICIDE	2,780	2,547	92
SPACING	927	405	44
TOTAL TENDING	3,707	2,952	80

Source: 2010-2014 Annual Reports
* Based on 4 years of audit term

Harvest

Harvest levels were lower than planned principally due to weak forest products markets and the resultant movement of harvest contractors to other management units. Based on the available data in the ARs, harvesting achieved 55 % of the planned harvest area target (Table 4). Harvest operations focused principally on marketable conifer forest units. Mixed wood stands when cut were harvested in accordance with FMP strategies intended to maximize the conifer content derived from logging operations[19]. Conifer

[19] Strategies include; Avoidance, Increased Wildlife Trees, Conifer Extraction form Hardwood Stands

utilization achieved 59.5 % of the planned volume (445,500 m^3) while hardwood utilization achieved 25.6 % of the planned volume target (115,800 m^3) (Table 5). Upland conifer forest units were more extensively utilized than lowland conifer units due to several unseasonably warm winters during the audit term, which precluded access to lowland areas. The high level of jack pine volume utilization reported in Table 5, reflects in part, the focus of operations on marketable conifer forest units and the better volume recovery associated with chipping operations (wood volume is retained on-site as logging slash when chipping is not conducted).

Approximately 54,600 m^3 of biomass was utilized. Hardwood utilization improved as co-generation and other market opportunities (particularly for poplar) became available during the audit term. A portion of the biomass volume included wood previously harvested by Buchannan Forest Products and left at roadside following the bankruptcy of the company.

The average yield achieved during the audit term was 144 m^3/ha. This yield is within 10% of the yield (133 m^3/ha) predicted in the FMP confirming that the planned volume used in SFMM was realistic.

All harvesting operations utilized the clearcut harvesting system (block cut harvest method). There were no second pass or salvage harvests. Contractors operating under the authority of Resolute's SFL were responsible for the harvest of approximately 80% of the allocation with the Upsala/Shebandowan Loggers Association (16%) and Lac des Mille Lacs FN (4%) operating on the remaining area. Approximately 95% of the harvest volume went to Resolute FP mill complexes.

An objective of the FMP is to conserve biodiversity through the emulation of natural disturbance patterns in terms of landscape pattern and distribution[20]. The legacy of past forest and wildlife management practices have resulted in a situation where aside from the core marten habitat areas there are not sufficiently large parcels of land which can be allocated to facilitate a transition to the proposed large disturbances. Historic moose habitat management practices resulted in a highly fragmented landscape condition, which makes the restoration or maintenance of large contiguous areas challenging. Based on the current forest condition it will not be possible to meet landscape level disturbance pattern guidelines for at least one rotation. However, the forested landscape is progressing slowly towards the preferred forest condition[21] through the application of management strategies which aggregate smaller areas for marten habitat and defer these blocks from harvest. Harvest operations were also directed to smaller blocks.

We note that the previous IFA provided a recommendation to address the cumulative impacts of missed landscape targets over the long term and concluded that a more eco-

[20] The Natural Disturbance Pattern Emulation Guideline advocates an 80:20 standard ratio where 80% of the planned clearcuts are less than 260 ha.

[21] The 2009 FMP forecast that 74% of the clearcuts would be less than 260 hectares. This target was only partially achieved with 68% meeting the forecast requirement.

regional approach to target allocation for landscape level values was required (See Footnote # 32). Action on this recommendation was not completed, as it was deemed to be a function of the planning process. The Action Plan Status Report indicates that it will be addressed during the development of the 2019-2029 FMP. We concluded that delaying the work until the development of the next plan was appropriate since eco-regional landscape science that supports the Forest Management Guide for Landscapes will be available for the development of that plan[22].

TABLE 4. PLANNED VS. ACTUAL HARVEST AREA BY FOREST UNIT[23] (2010-2014)

Forest Unit	Planned Harvest Area* (Ha)	Actual Harvest Area (Ha)	% of Planned Target
BF1	110.8	18.9	17
BW1	866.8	269.8	25
MC1	1,743.6	1,361.1	78
MC2	1,639.6	887.3	54
MH1	10,603.6	3,486.8	26
OC1	496.4	14.3	3
PJ1	2,921.6	1,695.7	46
PO1	4,031.6	2,136.7	42
PW1	-	-	
SPL	6,633.2	1,958.6	29.5
SPU	6,412.0	3,717.9	57.9
Total	**35,459.2**	**15,546**	**43.8**

[22] Since the 2009 FMP was completed, the MNRF has produced a supporting science package for the proposed *Forest Management Guide for Landscapes*. This science package provides an eco-regional context for what is believed to be natural conditions.

[23] Forest Units are as follows: BF1= Balsam Fir, BW1=White Birch, MC1=Mixed Conifer Upland, MC2=Mixed Conifer Lowland, OC1=Other Conifer, PJ1=Jack Pine, PO1=Poplar, PW1= White Pine, SPL- Spruce Lowland, MH1=Mixed Hardwood, SPU= Spruce Upland.

TABLE 5. ANNUALIZED PLANNED VS. ACTUAL VOLUME UTILIZATION ('000 M^3) 2010-2014.

Species	Planned Harvest (000 m^3)	Actual Harvest (000 m^3)	Percent Utilization (%)
Spruce	490.2	203.2	41.5
Balsam	72.0	27.7	38.4
Jack Pine	161.8	206.6	127.6
Tamarack	12.8	8	62.5
Cedar	9.7	0.0	0
R & W Pine	2.4	0.0	0
Total Conifer	**748.9**	**445.5**	**59.5**
Poplar	286.8	108.7	37.9
Birch	152.0	7.1	5.6
Ash	0.906	0	0.
Total Hardwood	**439.7**	**115.8**	**26.3**
Biofuel Mixed	0	54.6	
Total	**1,188.6**	**615.9**	**51.8**

During the field audit, we visited 10% of the area harvested. All inspected sites were approved for operations in the annual work schedules. Harvest prescriptions were implemented in accordance with the SGRs, and individual forest operations prescriptions were prepared and appropriately implemented for each harvest block. There was little evidence of site or environmental damage arising from harvest operations. AOC prescriptions within or adjacent to the harvest blocks were appropriately implemented.

Our field sample included an inspection of a riparian area where a cut-to-shore harvest prescription had occurred (AOC 12). A comprehensive set of Best Management Practices (BMPs) were developed and implemented to direct operations within riparian zones eligible for harvest operations. Our site inspection indicated that the AOC prescription was appropriately implemented and that BMPs had been utilized to minimize any risks of soil disturbance and/or shoreline erosion (e.g. there was no evidence of machine traffic in the riparian zone).

Slash & Chipper Debris Management

Resolute implemented a number of strategies to manage slash and chipper debris. These included piling and burning slash, spreading and/or re-distributing debris on the processing pad or within cutovers. Mechanical trenching to expose mineral soil for planting was also undertaken. Our assessment is that Resolute implemented an effective program.

Our site inspections found that pile burning was effective. Most of the sample sites were artificially regenerated following the burning operation.

During the initial years of the audit term, the management of chipper debris was less effective in preventing the loss of productive area as we found that debris were not spread thinly enough (< 20 cm) to facilitate tree survival on many processing sites. There was evidence of a considerable improvement in chipper debris management[24] during the latter years of the audit term due to on-going operator training, site supervision, and improved market opportunities for biofuel.

Area of Concern Management

Our field sampling confirmed that AOC prescriptions were appropriate for the protection and/or maintenance of the identified values. AOC prescriptions were implemented in accordance with the FMPs and the AWSs. FOIP records confirm this finding, as there were few compliance issues related to AOCs during the audit term.

Renewal, Tending and Protection

Renewal

Planned targets for renewal were not achieved (~ 50% of planned) as a result of the lower than planned levels of harvest. Despite the reduced level of harvest, the area renewed approximates the area harvested (15,548 ha harvested and 15,744 ha treated by renewal). Artificial renewal treatments were applied annually on 2,311 hectares (2,167 ha planted and 144 ha seeded) and natural renewal was utilized on 1,625 hectares (Table 6). All inspected sites were approved in the AWSs and renewal activities were in accordance with the applicable SGR and STP.

The focus of the renewal program on artificial renewal reflects the focus of harvest operations on conifer dominated stands (due to market availability) which are typically regenerated by planting or seeding treatments

The Long Term Management Direction (LTMD) projected that 19% of the renewal program would be achieved through Extensive treatments and 81 % through Basic and Intensive treatments (See Table 6). The lower dependence on extensive renewal treatments reflects (in part) the focus of harvest operations on upland conifer sites

[24] Debris had been spread to meet pad depth requirements or debris had been re-distributed back into the cut block. Planted stock survival was noticeably better on sites where pad depth had been reduced by spreading.

where artificial renewal treatments are more frequently adopted. Planting was more widely adopted than seeding due to a lack of sites favourable for seeding. The low level of natural regeneration achieved was a result of the deferred harvest of stands scheduled for natural renewal and the longer time period required to assess and report on the success of natural renewal.

The 2009 FMP contains a commitment to white and red pine (15 ha/year and 29 ha/year respectively) renewal to meet species restoration objectives. Actual renewal levels were 191 ha for white pine and 13 ha of red pine. Reasons cited for the slower than anticipated rate of red pine renewal included a lack of appropriate sites for planting and insufficient concentrations of pine being planted within designated sites due to a lack of suitable microsites.

TABLE 6. COMPARISON OF PLANNED VS. ACTUAL FOREST RENEWAL 2010-2014 (ANNUALIZED)

	FMP Planned (Ha)	Actual (Ha)	Renewal %
Artificial Renewal (Basic & Intensive)	2,981	2,311	77
Natural Regeneration (Extensive)	4,965	1,625	33

Our site inspections found that an effective renewal program was implemented. Areas renewed by planting were (on balance) adequately stocked and there was evidence of efforts by tree planters to appropriately space planting stock when natural ingress was present. Species selections were appropriate for the inspected sites. Seeding treatments were effective and desirable stocking levels were attained. Areas of natural regeneration were well-stocked to the desired species.

Site Preparation

The site preparation (SIP) program achieved 99 % of the planned target (2,285 ha planned vs. 2,271 ha actual). All mechanical site preparation treatments were by passive trencher. The inspected operations effectively exposed mineral soil (i.e. created plantable spots) and there was no evidence of site damage on the sampled sites.

Chemical site preparation achieved 202% of the FMP planned level. Our sampling indicated that the treatments were effective for the early control of competition.

Tending

Tending treatments are typically required for the optimal growth of desired tree species.

Approximately 96% of the area allocated for treatment by artificial renewal was scheduled for aerial herbicide, manual tending or pre-commercial thinning, with herbicide applications comprising 82% of the planned tending program. An area of

10,188 ha was treated with aerial herbicide during the first four years of the audit term (73% of the planned treatment area). Areal herbicide treatments were not undertaken in 2014, due to adverse weather conditions.

The level of tending is relatively high in proportion to the area harvested and was attributed to:

- the relatively high proportion of upland conifer sites harvested (which required artificial treatment including tending),
- more crop tree competition and natural hardwood regeneration in some conifer stands,
- the use of on-the-ground assessments for the determination of tending requirements.

Our site inspections indicated that the effectiveness of the spray program was variable. Some treated areas exhibited good competition control while in other areas the herbicide application was less effective. Resolute staff are aware of this issue, and have explored several strategies (including altering nozzle sizes and the concentration of water as the diluent or dispersing medium in the herbicide solution) to improve pesticide performance. RFP informed us that some of the areas identified as needing re-treatment have been sprayed (fall of 2015). However, we do provide a recommendation (Recommendation # 2) to assess all the areas treated by aerial herbicide applications between 2011 and 2013 to ascertain the effectiveness of the tending treatment. Silviculture interventions (e.g. subsequent tending, infill planting etc.) should be implemented as appropriate and required, to release crop trees and/or ensure that SGRs are met.

Spacing operations have historically provided youth (i.e. First Nation Ranger Program) employment opportunities on the Forest. Spacing operations took place on 1,620 ha (2010-2014) achieving 35 % of the planned levels in the 2009 FMP. The lower dependency on spacing treatments was attributed to the increased adoption of tree planting for renewal and a lack of sites suitable for treatment. Our site inspections found the program to be effective in controlling stand densities. However, given the limited extent of the spacing program (due to labour and area constraints) it will not contribute significantly to addressing the projected declines in wood supply.

Protection

No insecticides were applied during the audit term.

Access Planning and Management

Forest access planning for the Phase II FMP met FMPM requirements. The Annual Work Schedules contained FMP access-related requirements and roads were constructed in accordance with the relevant forest management guidelines.

Over the audit term 133 kilometres (kms) of road were constructed and some 21,000 kms of road maintenance work were completed.

Resolute accessed approximately $ 12 M for road construction and/or maintenance activities under the Forest Roads and Maintenance Agreement (FRMA) during the audit term. Invoices submitted to the FRMA were complete and accurate.

All inspected water crossings were well-constructed, and we did not observe any instances of environmental damage or public safety concerns. Our review of FOIP records confirms that there were no issues associated with water crossing installation and maintenance.

In our sample of forestry aggregate pits, we did not observe any non-compliances with pit operating standards. The audit term FOIP records confirm this finding.

Renewal Support

Renewal support activities were sufficient to meet projected renewal program requirements. These activities included cone (seed collection) and tree improvement activities at two seed tree orchards. Resolute participates in Forest Genetics Ontario as a member in the Superior Woods Tree Improvement Association.

4.5. System Support

Resolute's silvicultural data and information is documented and maintained in several data management systems including a Geographic Information System (GIS) and Woodlands the System (WTS). The systems are managed and maintained at the Thunder Bay Office. Documents were readily retrievable, and a back-up process was in place. Information requests were met in a timely manner. Forest Information Manual requirements for amendments, ARs, AWS's, were met. Our assessment is that Resolute maintains and operates an effective record/document management system.

Resolute implements an Environmental Management System (EMS) as a component of its ISO14001 certification. The EMS includes summaries of issues identified in various audits and there was evidence that the identified issues had been addressed, directly through training programs delivered to staff and/or the contractors. A simple and practical system of checklists (e.g. Bridge Inspection Checklist), maps (e.g. GPS Verification Map) and Harvest Sign –Off maps was in place to guide operations and in our assessment, played a major role in the relative lack of issues and problems reported during the audit period.

With the exception of the requirement to retain signed certification pages of the AWS (Recommendation # 4), all records and document development/retention requirements that are the responsibility of the MNRF were met.

4.6. Monitoring

SFL and District Compliance Planning and Associated Monitoring

MNRF compliance planning was completed on an annual basis and included targets and identified individuals responsible for completing the work. Resolute completed strategic compliance plans for the Phase 1 and 2 FMPs as required by the guidelines. All MNRF and Resolute compliance plans met the required formats, content and timelines.

The AR's from the audit period indicate that there were 421 inspections (MNRF completing approximately ten percent and Resolute approximately ninety percent). MNRF and Resolute held monthly meetings to review compliance issues, joint inspections were carried out on a regular basis and Resolute had a very effective EMS with associated training programs. For these reasons, our assessment is that the MNRF carried out an appropriate percentage of inspections on the Forest. The in-compliance rate was approximately 99 percent. We further sampled 30 randomly selected FOIP reports and determined that required reporting formats and timelines generally adhered to requirements in the *Forest Compliance Handbook (2010).*

Our assessment is that the excellent compliance rate is the result of the ongoing communications between Resolute and the MNRF and training programs implemented by Resolute. These training programs were very responsive to identified issues with training targeted at avoiding problems. Overall, we commend both the MNFR and Resolute for well-run compliance programs.

Monitoring of Silvicultural Activities

Monitoring occurred on a regular basis and included plantation survival assessments; condition surveys (assess the need for herbicide release treatments on artificial renewal sites), cuts-not-treated surveys (natural regeneration) and Free-to-Grow (FTG) surveys. It was our assessment that an effective monitoring program was in place.

Free to Grow Survey

As a general principle, it is desirable to annually assess (for FTG conditions) an area equivalent to one year's harvest. The Trends Report indicates over the period from 1995-2014 the area harvested was 124,284 ha and the area surveyed was 67,517 ha (54%). Ninety-one percent of the area surveyed was considered to be regenerated and FTG

Historically RFP conducted FTG surveys 7-10 years after harvest. RFP has adopted a new regeneration assessment timeframe, which extends the FTG assessment period to between 10-15 years after harvest (dependent on species and eco-site). The rationale for extending the period between harvest and assessment is that later surveys provide a more accurate representation of early succession stand and site conditions. Under this

assessment schedule, approximately 65,450 ha would be eligible for FTG assessment at any given time.[25]

Between 2009 and 2014, 19,599 ha was harvested and 21,372 ha were surveyed for free-to-grow (FTG) status[26]. Ninety-four percent (20,093 ha) of the area surveyed was declared FTG. Lands not classified as FTG typically did not meet height or stocking standards or required tending treatment.

Our visual assessments of FTG sites substantiated the stand descriptions and forest unit designations reported by Resolute. MNRF Silvicultural Effectiveness Monitoring (SEM) reports typically validated the survey results reported by the SFL holder.

Silvicultural Success

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

Table AR-13 indicates that the silviculture success rate for the 2009-2014 term is 46% (See Table 7). The regeneration success rate was 94%.

We were informed by RFP and the District MNRF staff that the direct comparison of silviculture success by SGRs has not been an effective representation of actual silvicultural success. The assessment is complicated by changes in SGRs and forest units, the breakpoints of the various percent compositions upon which forest units were categorized through time, and the resolution of the assessment at time of FTG.

We concurred with this assessment, as our experience over a number of audits is that narrow definitions for forest units often lead to circumstances where a relatively minor shift in species composition (e.g. 10%) can result in a change in forest unit designation and the declaration of a silvicultural failure. Our site investigations indicated that many of the forest unit transitions that were occurring could be attributable to the ingress of natural jack pine on spruce upland or mixed conifer ecosites, which resulted in a forest unit transition to PJ1, MC1 or MC2 designations. In other instances where silvicultural failures were recorded, the result typically reflected higher than acceptable levels of hardwood occurring within the sampled area[27].

Renewal to other forest units frequently results in acceptable future forest conditions. As evidenced in Table 8, despite the low level of silvicultural success reported, the relative proportion of cover types and their area has been relatively stable with a minor reduction in overall conifer composition over successive plan terms. In recent Year 3 approved Annual Reports in the Northwestern Region, forest units have been

[25] Based on the new assessment timeframe no backlog in area requiring survey exists.
[26] FTG assessment work was not undertaken in 2014.
[27] These sites are monitored and additional tending treatments are implemented (as appropriate), to meet the objectives of the SGRs.

amalgamated into forest types[28] (Conifer Dominated, Conifer Dominated Mixed and Hardwood Dominated) as these broadly defined forest unit groupings provide more meaningful information at the landscape level. Broader forest composition descriptions are also more ecologically meaningful given the early stage in the development of the stand.

Basing silviculture success on broader forest type groupings has the demonstrated effect of improving outcomes when reporting silviculture success (Resolute's analysis of silviculture success based on orest type groupings; resulted in a silviculture success rate of 80.2%). Given the limitations imposed by more narrowly defined forest unit definitions we concluded that assessing silviculture success on broad forest type groupings was appropriate, and provided more meaningful information for the interpretation of the effectiveness of SGRs in achieving the projected forest unit. We provide a recommendation to the MNRF Forest and Lands Policy Branch to consider this approach[29] (Recommendation # 3).

TABLE 7. SILVICULTURAL AND REGENERATION SUCCESS BY FOREST UNIT (2009-2014)

Forest Unit	Total Area Assessed (Ha)	Area Regenerated to the Projected Forest Unit (Ha)	Area Regenerated to Another Forest Unit (Ha)	Area Not Successfully Regenerated (Ha)	Percent Area Silvicultural Success
BF1	141	37	103	0	26.2
BW1	48	10	38	0	20.8
MC1	5,249	1,986	3,178	85	37.8
MC2	2,381	666	1,568	148	28.0
MH1	3,203	1,433	1,671	99	44.7
OC1	14	0	0	14	0
PJ1	4,200	2,998	1,126	75	71.4
PO1	1,193	660	533	0	55.3
SPL	2,227	1,041	491	696	46.7
SPU	2,716	1,048	1,506	161	38.6
Total:	21,372	9,879	10,214	1,279	46.2

Source: AR-13 Annual Report of Assessment of Regeneration and Silvicultural Success.

[28] Amalgamations are as follows: Conifer Dominated = BF1,MC1,SPU, PJ1,OC1,PW1, PR1, Conifer Dominated Mixed=MC2 and Hardwood Dominated = BW1,MH1m and PO1.
[29] A Silviculture Enhancement Initiative Project is currently reviewing a number of silviculture-related issues and will provide input in an FMPM review initiative.

TABLE 8. CONIFER AND HARDWOOD FOREST COVER COMPOSITION (1990-2009)
AVAILABLE MANAGED CROWN & PATENT LAND

Forest Units	1990-1995	1995-2000	2000-2005	2005-2009	2009-2019
	Area (ha)	Area (ha)	Area (ha)	Area (ha)	Area (ha)
BF1	81,589	61,420	28,394	1,878	2,303
MC1	-	-	133,919	94,368	65,458
MC2	-	-	88,048	68,567	63,588
OC1	-	-	2,894	6,321	12,242
PJ1	124,701	129,717	78,171	89,620	87,315
PR1	-	-	464	710	587
PW1	-	-	524	626	1,154
SPL	-	-	87,869	118,626	128,365
SPU	264,419	261,899	87,860	82,341	129,165
Total Conifer	**470,709**	**453,036**	**508,143**	**463,056**	**490,177**
Conifer Proportion	**73%**	**70%**	**75%**	**68%**	**67%**
Hardwood Composition					
BW1	45,848	42,118	4,781	7,715	20,578
MH1	-	-	113,491	172,921	132,982
OH1	-	-	127	305	521
PO1	129,242	150,644	52,221	36,171	85,761
Total Hardwood	**175,089**	**192,762**	**170,620**	**217,112**	**239,842**
Hardwood Proportion	**27%**	**30%**	**25%**	**32%**	**33%**
Total Conifer + Hardwood	**645,799**	**645,798**	**678,763**	**680,168**	**730,019**

Source: Trends Analysis

Silvicultural Effectiveness Monitoring (SEM)

The effectiveness of forest operations prescriptions in achieving the desired forest unit must be understood to facilitate reporting on forest sustainability and to provide reliable information for forest management planning (e.g. development of SGRs, SFMM inputs). As identified in the FMPM and the Forest Information Manual (FIM) the SFL holder is required to provide information on the outcomes of its silviculture program to the MNRF. MNRF is required to substantiate the reported results and evaluate the effectiveness of the silviculture program.

MNRF implemented a SEM program that met all core task requirements. Our review of SEM reports found that MNRF data substantiated the accuracy of Resolute's FTG

survey program and discrepancies between findings of the MNRF and RFP surveys were typically within an acceptable range of variation.

Exceptions Monitoring

Exceptions monitoring is carried out to determine the effectiveness of prescriptions included in forest management plans that are "*not recommended*" in the MNRF forest management guides. Exceptions in the 2009 FMP included; full tree logging on shallow soils on Ecosite (ES) 12 sites where soil depth is less than 20 centimeters, direct seeding of jack pine as a regeneration method on eco-sites 16, 17,19,21,23, 27, 28, 29, 32 and 33 and increased harvesting of shorelines and lakes and streams than that permitted in the "*Timber Management Guidelines for the Protection of Fish Habitat"* (OMNR, 1988).

The Phase II FMP lists full tree logging on ecosites 11 and 12 and riparian cut-to-shore harvests (Forward Watershed and Riparian Disturbance Project (FORWARD)) as exceptions to the forest management guidelines. Resolute contributes to a comprehensive region-wide initiative to monitor the impacts of full tree logging on shallow ecosites. Our record review and field inspections of operations such sites confirmed that best management practises for operations on shallow sites (e.g. winter harvest) were implemented, and there was no evidence of site damage or degradation.

Harvesting occurred on 308 ha of eco-site 11 and 12 during the audit term. No harvesting within the designated FORWARD project area occurred during the audit period.

Forest Renewal Trust Specified Procedures Report

Sites invoiced in the "Forest Renewal Trust Specified Procedures Report (SPR)" were visited to ensure conformity between invoiced and actual activities. No non-conformities were found.

Access Monitoring

Resolute monitors roads and water crossings through its roads program, which is a component of its corporate Environmental Management System (EMS) and in accordance with the requirements of the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (2010). A centralized water crossing and bridge inventory database is maintained to address the requirements of the previous audit.

Roads and water crossings monitoring is largely limited to areas of active operations although the EMS sets standards for minimum inspection frequencies (Table 9). Water crossings requiring repairs or re-installation are recorded in the FOIP Compliance Monitoring System with water crossing maintenance activities prioritized based on public safety and the potential for negative environmental impacts.

TABLE 9. ROADS MONITORING AND INSPECTION FREQUENCY BY ACTIVITY

Roads Activity	EMS Minimum Inspection Frequency
New Water Crossings	FOIP required as per Compliance Plan in FMP. Inspection required upon completion of installation.
Bridges - Active	Annual Inspection
Bridges - Inactive	Inspected every 3 years.
Existing Roads and Water Crossings - Active	Inspected annually or per FMP requirements. List of roads specifically identified for monitoring in AWS.
Existing Roads and Water Crossings – In-active	Once every 3 years with the list of roads and crossings determined on an annual basis.
Existing Roads and Water Crossings - Inaccessible	Inspected incidentally on an on-going basis or per FMP requirements.

Source: Year 3 AR

The previous audit identified a need for improved training for road maintenance contractors in proper road grading techniques to address the issue of false ditches on access roads. The company implemented a number of steps to address the recommendation including operator training, implementation of Best Management Practices for Road Maintenance and an annual monitoring program. Our field site inspections indicated that the recommendation was satisfactorily addressed.

Annual Reports

Audit term Annual Reports (ARs) were prepared by a contracted service provider. ARs were available for each year in the audit scope with the exception of the 2014-2015 AR, which is not required until November 15, 2015. Reporting schedules for initial and re-submissions of the ARs were with a few exceptions adhered to. We found the quality of the approved ARs to be acceptable and the content requirements of the 2009 FMPM were met.

4.7. Achievement of Management Objectives & Sustainability

The IFAPP requires that Trends Analysis Report be prepared to support the audit. The following trends were reported by RFP:

- A declining trend in the area and volumes harvested over the last two planning terms that reflects the downturn in the forest sector economy, and the idling

and/or closure of several sawmills and pulp mills near the Forest (Figure 3). Actual harvest levels approximated 44% of planned.

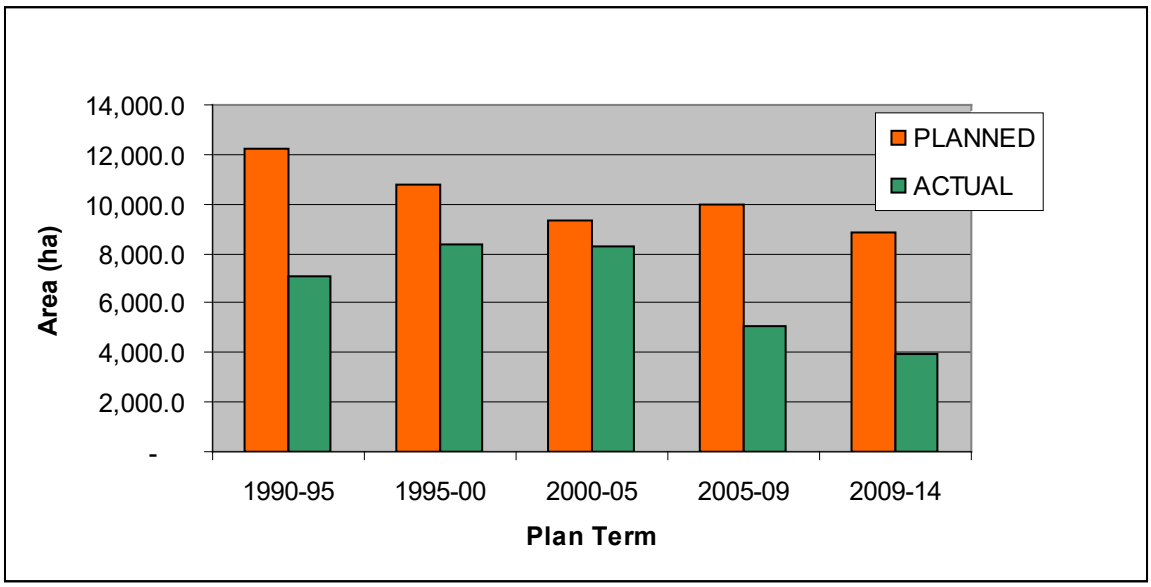


FIGURE 3: ANNUALIZED ACTUAL VS. PLANNED HARVEST AREA 1990-2014

- The area of non-productive, barren and scattered (B&S) and not satisfactorily regenerated (NSR) land has increased over time due to the change of definition for the land categories in the 2009 FMPM.

- The lower than planned area harvested, particularly for hardwood dominated forest units resulted in a lower than planned area being renewed by natural regeneration. Approximately 62% of the area harvested was treated by artificial renewal, which coincides with the increased market focus of the RFP on conifer-dominated stands.

- None of the targets for silviculture were met as a result of the reduced level of harvesting. Despite the failure to achieve planned targets, no backlog in silviculture exists.

- Approximately 54% of the area harvested since 1995 has been surveyed for free-to-grow status. Ninety-one percent of the area surveyed was considered to be regenerated and FTG.

We note that the assessment of trends associated with forest cover was difficult due to changes in SGRs and forest units over successive management terms. As well, the assessment of trends in habitat supply (for selected wildlife species and species at risk) was not possible due to changes in habitat modelling and reporting that have occurred over successive management terms. We agree with the reported trends, and conclude that the plan targets (as determined through the SFMM) are consistent with the achievement of plan objectives and forest sustainability.

In our assessment of forest sustainability, we examined factors such as the achievement of plan objectives, progress towards the desired future forest condition, the level of benefit derived from implementation of the FMP and observations from the field audit and other audit evidence (i.e. trends in silvicultural success, trends in regeneration success etc.).

The FMP objectives and the associated indicators and targets were considered against the tenets of the Crown Forest Sustainability Act. These include: forest diversity, forest cover, social and economic values and silviculture effectiveness. We found that the planning team had achieved a satisfactory balance between wood supply and retaining acceptable levels of wildlife habitat in light of the constraints imposed by the fragmented landscape, stand structures and the age class area imbalance. The landscape patterns and stand structures arising from natural disturbances, (e.g. fire) and the implementation of wildlife management policies in the past and historic forest management practices have limited the extent of mature forest on the DRMF for the foreseeable future. In order to moderate projected harvest area and volume declines and meet other plan objectives (i.e. provision of wildlife habitat[30]) younger stands were allocated for harvest during the current FMP term.

The existing age class area imbalance has also resulted in a protracted period of reduced wood supply that will not meet current industrial demand. This circumstance has social and economic implications for forest sustainability over the short to mid-term. It is quite possible that the real issue is that current landscape level objectives and targets are unrealistic . We support the previous IFA recommendation that an assessment be made of the eco-regional impacts of missing significant landscape targets (See Footnote # 32).

As indicated in this report, it will take longer than a single rotation to achieve the desired age class distribution due to the significant existing age class area imbalances and requirement to meet other FMP objectives (e.g. marten core habitat requirements). Despite the constraints imposed by forest sector markets and the overarching landscape and forest conditions this audit determined that progress is being made with respect to the achievement of most of the plan objectives[31](Appendix 2). Clearly, the delivery of the forest management program is complicated by the fragmentation of forest cover and age class area imbalances. Reductions in harvest levels (area and volume) are projected over several future management terms (Table 10).

[30] Moose habitat requirements removed 29,000 ha mostly mature conifer from the AHA calculation and specifically removed 14,000 ha of eligible timber in late winter habitat patches. This exacerbated the timber harvest shortfall and contributed to the need for age class substitution in the determination of allocations.

[31] For example, SAR species are being appropriately considered in the forest management planning processes and AOCs are effectively protecting or maintaining values, the area of renewal exceeded the area harvested, there was a high level of compliance in forestry operations and the FMP SGRs, STPs and FOPs were appropriate for the forest cover types and site conditions.

TABLE 10. PROJECTED AHA AND PROJECTED AVAILABLE HARVEST VOLUME BY MANAGEMENT PERIOD.

All Species	2009	2029	2049	2069	2089	2109
AHA (Ha)	88,458	63,023	54,685	65,770	54,198	69,155
Volume (000's m^3)	11,551	8,270	6,758	8,601	7,674	8,823

It was not possible to meet desired levels for all management objectives given the existing age class area imbalance and societal requirements to achieve an acceptable balance between wood and wildlife habitat supply. Harvest levels are very volatile as the balance of age classes is addressed through forest management and the forest moves towards the desirable future forest condition (i.e. more regulated age class distribution). Desired harvest levels are however, achieved at the end of the modelling period.

We conclude that targets for timber production were appropriately derived and, that while harvest levels and habitat supply (for some wildlife species) will be below preferred levels for varying periods of time, the projected declines are driven by landscape conditions arising from the long use and management of the unit as an industrial forest. We further note that consistent with the LTMD, available harvest levels decline with declining wood supply over future management terms. We concluded that under the current legislative framework the planning strategies adopted are appropriate and necessary to maintain the viability of the industry and to achieve a balance with other FMP objectives. Non-timber uses were appropriately considered in the strategic and operational planning processes.

The current forest condition in combination with FMPM planning requirements (e.g. for the provision of wildlife habitat) resulted in the need for forest-wide distribution of harvest allocations as opposed to a more logistically efficient concentration of harvest areas. Isolated higher cost allocations are only economically viable for operations when these allocations can be balanced with other more concentrated areas of lower cost wood. To moderate the projected declines in harvest area and volume, to maintain economic viability and to meet wildlife habitat objectives, age class substitutions and riparian harvest chances were identified.

The implications of the harvest of younger stands was thoroughly investigated as it was recognized that age class substitutions could potentially result in "*a slightly deeper than forecast drop in volume*" for the next planning term. The forecast drop in volume is counterbalanced by a "*slightly better than forecast wildlife habitat supply*" for some species (e.g. moose and marten).

The area selection process for the allocation of harvest blocks is well-documented in the FMP and its supplementary documentation. The plan states "*The difficulty of fitting on-*

the-ground harvest stand allocations to the SFMM AHA reflects the state of forest and foreshadows the patterns of forest management for at least the next 40 years".

Supplementary Document FF (Proof of Availability to Meet Second Term AHA) provides an analysis completed by the planning team to allay concerns that the age class substitutions could compromise future harvest levels or interfere with the achievement of other plan objectives. This analysis indicated that there is sufficient area to meet the LTMD 2019-2029 AHA. We concluded that the deviation between the SFMM AHA and the FMP harvest allocation was appropriate and necessary and that forest sustainability was not at risk as a result of the modified allocations.

On balance, an effective silviculture program was implemented during the audit term. Sites inspected for renewal were typically well-stocked to the desired species, and the SGRs and STPs adopted in planning and operations were appropriate. No significant backlogs in silviculture treatments exists and our site inspections confirmed that there were not any significant impacts arising from these operations during the audit term.

The chemical tending program significantly exceeded levels planned in the FMP reflecting the focus of the renewal program on conifer forest units which are typically renewed by artificial regeneration. While our field inspections indicated that the tending treatments had achieved variable results over the audit term and we provide a recommendation (Recommendation # 2) to address this finding. We note that RFP staff were aware of the issues associated with the delivery of the tending program and had taken measures to proactively improve pesticide performance. Additionally, some areas had been retreated and an expanded spray program is scheduled for the fall of 2015. An effective monitoring program was also implemented which evaluated the requirement for tending treatments on renewed areas and assessed the efficacy of the treatments applied. In combination, these circumstances lead us to conclude that the sustainability of the forest was not being jeopardized as a result of the uneven effectiveness of tending treatments associated with the audit term.

Although planned spacing targets were not achieved (principally due to a lack of area , and the focus on tree planting) we concluded that the failure to meet planned spacing targets would not adversely impact long term wood supply projections or forest sustainability.

The DRMF was managed in compliance with the terms and conditions of the SFL and that forest operations were conducted with a high level of compliance. AOC prescriptions to maintain or preserve identified values were also appropriately implemented during field operations.

We conclude that the achievement of long-term forest sustainability, as assessed through the Independent Forest Audit Process and Protocol, is being achieved.

4.8. Contractual Obligations

Appendix 3 presents our findings with respect to the SFL holders' forest management obligations. It is our assessment that the contractual obligations had been sufficiently met although there are some shortcomings. We report that some of the Trust accounts are in arrears and that MNRF is pursuing the collection of monies owed. Signed copies of AWS's were not available at the auditee offices (RFP and MNRF) (Recommendation # 4) and the Action Plan to address the recommendations of the previous audit was submitted late (Recommendation #5).

The IFAPP requires auditors to assess the effectiveness of the actions developed to address the recommendations of the previous audit. Appropriate actions have been taken to address the recommendations. In some instances, issues identified by the audit are being addressed annually on an on-going basis. The Status Report indicates that Recommendation #2[32] of the previous audit would be more appropriately addressed during the development of the 2019 FMP. We concur with that assessment.

4.9. Conclusions and Licence Extension Recommendation

Resolute FP and the MNRF are effectively managing the Dog River-Matawin Forest. Most of the planned forest management targets were achieved (to the extent possible given prevailing market conditions), and there were very few compliance issues associated with operations. The contractual obligations of the SFL holder and obligations of MNRF as the administrator of the Forest were generally met.

The audit team concludes that management of the Dog River-Matawin Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Resolute FP Canada Inc. 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 the Sustainable Forest Licence # 542459 for a further five years.

[32] Recommendation # 2: Ontario Ministry of Natural Resources (both local and regional) and AbitibiBowater Inc. shall assess the ecoregional impact of missing significant landscape targets over a long time period on the Dog River Matawin Forest.

Appendix 1

Recommendations

Independent Forest Audit – Record of Finding

Recommendation # 1

Principle: 3. Forest Management Planning

Criterion: 3.3.2. Forest Resource Inventory

Procedures: 1. Assess whether the FRI has been updated, reviewed and approved to accurately describe the current forest cover that will be used in the development of the FMP.

Background Information and Summary of Evidence

FRI information used for the preparation of the 2009 FMP was based on 1996 aerial photography with the inventory information updated for harvest depletions and natural disturbances to 2009. The FRI base data was thirteen years old at the start of the plan and will be twenty-three years old at the time of plan renewal. These inventory related issues presented challenges for operational planning and wood supply modeling.

A new Enhanced FRI is scheduled for delivery in October 2015. The Phase I: Stage One – Invitation to Participate for the development of the next DRMF FMP is slated for September 2016. The Forest Information Manual requires that inventory information be available to the licensee no later than nine months prior to the invitation to participate (FMPM Part A Section 3.3.3) and provides the licensee with a 3 month window after receiving the planning inventory to check the information for completeness. Delays in receipt of the inventory or the processing of identified inconsistencies or errors will have direct negative implications for the scheduled delivery of the next FMP.

Discussion:

The timely delivery of FRI products is out of synchrony with the forest management planning cycle. This circumstance is not unique to the DRMF.

Up-to-date and accurate forest inventory information is critical for reliable inputs and informed decision-making in the forest management planning process.

Recommendation # 1 :

The Forest Resources Inventory Unit must ensure the timely delivery of FRI products in order to facilitate the incorporation of more current forest resource information in forest management plans

Independent Forest Audit – Record of Finding

Recommendation # 2

Principle: 4 Plan Assessment and Implementation

Criterion: 4.5. Renewal, Tending and Protection

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

Background Information and Summary of Evidence:

Effective tending treatments are typically required to promote the establishment and growth of desired crop tree species. Our site investigations found that the effectiveness of the herbicide tending program was variable across ecosites and operating years between 2011 and 2013. Some treated areas exhibited good competition control while in other areas the herbicide application was less effective (~60%).

Resolute staff are aware of the variable effectiveness of the aerial herbicide applications and had proactively explored several strategies (including altering nozzle sizes and the concentration of water as the diluent or dispersing medium in the herbicide solution) to improve pesticide performance. Additionally, some areas had been retreated and an expanded spray program is planned for fall 2015. An effective monitoring program was also implemented which evaluated the requirement for tending treatments on renewed areas and assessed the efficacy of the treatments applied. In combination, these circumstances lead us to conclude that the sustainability of the forest was not being jeopardized as a result of the uneven effectiveness of tending treatments associated with the audit term. However, we are concerned that a long-term persistence of competition control issues may adversely impact management initiatives to address the wood supply issue associated with the Forest. Ineffective competition control over extended periods will also have negative implications for the full achievement of objectives dependent on the renewal and maintenance of conifer-dominated cover types.

Discussion:

In the absence of an effective tending program investments in conifer renewal are being lost. The company is well aware of the issue associated with its aerial herbicide program over the audit term and is commended for its actions to determine the root cause(s) for the observed field results and to seek solutions to improve the pesticide performance.

We believe that the company should assess areas treated between 2011 and 2013 to ascertain if silviculture interventions (e.g. subsequent tending, infill planting etc.) are required to release crop trees and/or ensure that SGRs are met.

Recommendation # 2:

Resolute FP should assess all areas treated with aerial herbicide applications between 2011 and 2013 to ascertain if silviculture interventions are required to release crop trees and/or

ensure that the SGRs are met.

Independent Forest Audit – Record of Finding

Recommendations # 3

Principle: 6 Monitoring

Criterion: 6.3. Silviculture Standards and Assessment Program

Procedure(s): 2. Assess whether the management unit assessment program (SFL and District) is sufficient and being used to provide the required silvicultural effectiveness monitoring information.

Background Information and Summary of Evidence:

Based on the aerial surveys and ground-based surveys utilizing the MNRF Free Growing Regeneration Survey methodology Table AR-13 reports a silviculture success rate of 46% for the 2009-2014 term.

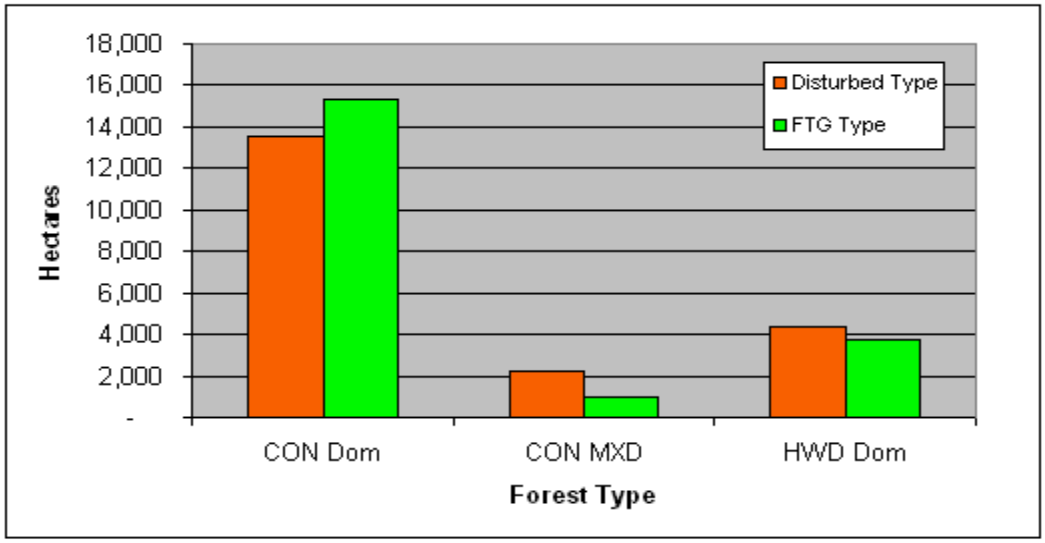
The direct comparison of silviculture success by Silvicultural Ground Rules has not been an effective representation of actual silvicultural success in the field on the DRMF. Our experience over a number of audits is that narrow definitions for forest units often lead to circumstances where a relatively minor shift in species composition (e.g. 10%) can result in a change in forest unit designation and the declaration of a silvicultural failure. On this audit, our site investigations indicated that many of the forest unit transitions that were occurring could be attributable to the ingress of natural jack pine on spruce upland or mixed conifer ecosites, which resulted in a forest unit transition to PJ1, MC1 or MC2 designations. In other instances the result typically reflected higher than acceptable levels of hardwood occurring within the sampled area at the time of sampling.

We note that these issues have been discussed by various groups involved in the recent MNRF silvicultural enhancement initiative.

Discussion:

Renewal to other forest units can frequently result in acceptable future forest conditions. For example, despite the low level of silvicultural success reported, the relative proportion of cover types on the DRMF has been relatively stable with a minor reduction in overall conifer composition over successive plan terms.

In recent Year 3 approved Annual reports in the Northwest Region, analysis of FTG data based on the amalgamation of forest units into broad forest types (Conifer Dominated, Conifer Dominated Mixed Wood, and Hardwood Dominated) has been adopted and accepted. The figure below shows the disturbance forest type vs. FTG forest type for the 2009-2014 term.



The Conifer Dominated forest type consists of (BF1, MC1, SPU, SPL, PJ1, OC1, PW1 and PR1). The Conifer Dominated Mixed forest type consists of the MC2 forest unit. The Hardwood Dominated forest type consists of (BW1, MH1 and PO1). The disturbed type comes from the forest unit for the stand in the planning inventory at the time of harvest and the FTG type is the forest unit given to the stand at the time of FTG survey. By grouping the forest units into forest type groupings a more accurate description of the forest at the landscape level can be obtained.

Resolute's analysis of silviculture success based on the forest type groupings; resulted in a silviculture success rate of 80.2%. It is noteworthy that the District MNRF concurred with this approach.

Conclusion:

We concluded that assessing silvicultural success on the basis of narrowly defined forest units may not be a reliable predictor of silviculture success on some forest management units. More broadly defined forest type groupings appear to provide more meaningful information at the landscape level and a forest composition scale that is ecologically meaningful at such an early stage in the development of the stand.

Recommendation # 3:

The Crown Forests and Lands Policy Branch should evaluate the adoption of broadly defined forest type groups for the reporting of silviculture success.

Independent Forest Audit – Record of Finding Recommendations # 4
Principle: 8. Contractual Obligations **Criterion:** 8.1.9. Audit Action Plan and Status Report **Procedure(s):** An action plan responding to audit recommendations…is to be completed within 2 months of receiving the final audit report
Background Information and Summary of Evidence: The 2010 IFA report was received on May 30, 2011. The Action Plan was approximately eight months late, with final approval on April 18, 2012. The Action Plan Status Report was completed on time.
Conclusion: Adherence to reporting timelines for the Action Plan and Action Plan Status Report is a contractual obligation. This obligation was not met.
Recommendation # 4: The MNRF District Manager must ensure that the Action Plan is prepared in accordance with the schedule specified in the Independent Forest Audit Process and Protocol.

Independent Forest Audit – Record of Finding Recommendation # 5
Principle: 8 Contractual Obligations **Criterion:**. 8.1.3. Preparation of FMP, AWS and Reports **Procedure(s):** Preparation of the FMP, AWS and reports…and other requirements of the FMPM.
Background Information and Summary of Evidence: In reference to the submission, review and approval of the Annual Work Schedule the 2009 FMPM requires that " *The signed approval page will remain on file in the office of the MNR District and the sustainable forest licensee*." Signed certification pages were not available for the 2010, 2011 and 2012 AWS at the Resolute office and pages could not be located at the MNRF District Office.
Conclusion: The auditees must retain the signed approval page on file as required by the FMPM.
Recommendation # 5: Resolute FP and the MNRF District must retain the signed AWS approval page on file in their offices.

Appendix 2

Achievement of Management Objectives

2009 FMP OBJECTIVES	ASSESSMENT OF OBJECTIVE ACHIEVEMENT (BEING) MET NOT (BEING) MET PARTIALLY MET	AUDITOR COMMENTS
A) FOREST DIVERSITY Note: Forest Diversity objectives, as created and tested in the production of the 2009 FMP are by their design, long term. For most of the diversity objectives inadequate time has elapsed since approval of the 2009 FMP for the effects of limited natural disturbance and limited harvesting to have a measurable impact on forest diversity. Nevertheless, we make some additional comment (below) for each of the forest diversity objectives. In the case where inadequate time has elapsed to assess the achievement of an FMP objective and in the absence of other relevant information, we have assigned it a status of "BEING MET", based on testing of the objective during 2009 FMP preparation.		
Objective A1 : Natural landscape pattern and distribution: To create a pattern of disturbances on the forest through the application of forest harvesting, which emulates natural disturbance patterns resulting from forest fire.	**BEING MET**[33]	This objective has three indicators and associated targets. Indicators 1 and 2 are frequency distribution (%) and area distribution (%) of forest disturbances by size class as determined through use of the NDPEG tool. The target for these indicators is Progress towards the desirable level by plan end. Indicator 3 is the ratio of number of small (<260 ha) planned clearcuts to larger planned clearcuts (>260 ha). The target (at Plan end) for indicator 3 is 80% (<260 ha), 20% (>260 ha). The target for Indicator 3 will not be met by the end of the plan. The rationale for this shortfall is provided in the FMP text. The FMP also

[33] Targets for two of the three indicators for this objective will be met and one will not be met.
We have assigned this objective a category of category of "BEING MET" but if we were to make our assessment in this Table on the basis of each indicator, our assessment of this Objective would be 2 "BEING MET" and 1 "NOT MET".

		discusses why the indicator may be inappropriate for this forest given past management practices and wildlife management policies. It is quite possible that the real issue is that current landscape level objectives and targets are unrealistic and we support the previous IFA recommendation that an assessment be made of the eco-regional impacts of missing significant landscape targets (See Section 6.7). This objective and related targets as approved in the 2009 FMP constitute a reasonable approach for the achievement of forest diversity and generally indicated movement toward desired levels; however planned harvest levels need to be achieved for progress to be made. The ratio of small to large cuts exceeds the standard for the first five years. This result was expected due to the current structure of the Forest.
Objective A2: Forest structure, composition and abundance; Forest Unit Distribution: To maintain all forest units on the forest in proportions which are consistent with management intent and best use of site resources and which target the natural bench mark distribution of forest units except as specified in relation to specific management intentions.	**BEING MET**	The approved 2009 FMP assessment was that although disparities occur within individual age classes and forest unit, in general the forest structure is moving towards the desirable level. The age class area distribution is becoming more normalized with time and the implementation of forest management. The white birch forest unit declines farther and faster than the desirable level (natural benchmark) because of the reduction of forest fires and because of the desirability of converting pure quality birch stands to conifer. The achievement of this objective is dependent on full harvest utilization.

		The FMP strategic modeling indicates that with the implementation of forest management the forest structure is progressing towards desired levels through time.
Objective A3: Forest structure, composition, and abundance; Age Class Structure: To ultimately create an age class structure which supports a sustained, relatively even-flow of wood products and will provide for a targeted amount of old growth timber	**MET**	The age class area structure moves towards the desirable level over time.
Objective A4: Forest structure, composition and abundance; White Pine Ecosystem: To increase the presence and health of white pine ecosystems within the PW1 forest unit and as component species within other forest units	**MET**	The 2009 FMP projected achievement of 100% of the desirable level (3,500 ha) by Year 100. A white pine planting program has resulted in the establishment of approximately 191 ha of white pine forest to date, which exceeds the planned target of 123 hectares.
Objective A5: Forest structure, composition and abundance; Red Pine Ecosystem: To increase the presence and health of red pine ecosystems within the PR1 forest unit	**NOT BEING MET**	The 2009 FMP projected that this objective will be achieved by the Year 100. The red pine planting program has encountered challenges which have resulted in a slower than anticipated levels of red pine establishment. Insufficient concentrations of red pine were planted in the areas prescribed for planting (due to a lack of suitable microsites) and a lack of planting sites suitable for the species have hindered the achievement of this objective.

Objective A6: Forest structure, composition and abundance; Old Growth: To provide for "old growth" timber on the landscape based on projected levels from the natural benchmark. Old growth will be retained past normal harvest age but will normally be harvested prior to the end of the operability window if at all practical	**PARTIALLY MET**	It is too soon to assess the achievement of this objective. To date there has been insufficient area harvested to significantly affect the retention of old growth over the long term. Red pine forest unit old growth targets will not be achieved as a result of a lack of area suitable for red pine renewal. For other forest units, desirable levels are projected to be achieved at Year 100.
Objective A7:Habitat for animal life; Marten Core Habitat (Spatial): To provide suitable habitat for pine marten and other species requiring similar habitat in 3,000-5,000 ha core areas distributed across the forest land base	**NOT BEING MET** **(Progress is being made)**	We agree with the FMP and Trends Analysis observations that: "*There is insufficient harvest completed to have significantly affected the marten core habitat over the long term*." and that: "*The desirable level of 10%-20% is not reached within 60 years. Socio-economic factors, including a rapidly declining wood supply required a balancing of objectives for lower achievement. In addition, a high degree of fragmentation and skewed age class structure also result in longer time periods to restructure the landscape into more future cores, i.e. longer than 60 years".* However, there is an improvement from last plan and further improvement is projected over time.
Objective A8:Habitat for animal life; Provision of Late Winter Moose Habitat: To provide sufficient, strategically placed, late winter habitat for moose on the DRMF.	**BEING MET**	During the 2009 FMP planning process, targets and desirable levels for retention of late winter moose habitat were projected to be met.

Objective A9: Forest diversity - habitat for animal life; Featured Species (Aspatial): To provide specific habitat for 8 featured species.	**BEING MET**	Insufficient area has been harvested to significantly affect the habitat supply for the featured species. The DRMCAC and the planning team determined that the targets for certain species (i.e. Great Grey Owl, Pine Marten, Black Backed Woodpecker, Canada Lynx) would be set to 30% below the natural benchmark to have a less detrimental impact on wood supply; all other species would retain the unofficial -20% target. In SFMM, habitat levels for all species (except moose) exceed the natural benchmark over all the plan terms. In the long term, some habitats for moose will not achieve target levels since the current level of harvesting will not create as much young forest as would be created by the natural fire cycle. This circumstance is not expected to be a limiting factor for the moose population as the supply of browsing habitat exceeds population needs.
Objective A10: Habitat for animal life: Species at Risk: To protect species and associated habitats at risk as encountered on the DRMF.	**MET**	The 2009 FMPs indicate that Species at Risk (SAR) habitats were to be managed through the application of AOC prescriptions on an as encountered basis. Over the audit term, no forestry operations occurred in known SAR habitats.
B) SOCIAL AND ECONOMIC ENVIRONMENT		
Objective B1:Harvest levels: To maximize the harvest of commercial timber species from the DRMF while meeting	**NOT MET**	Over the last 4 years 55% of the planned harvest area was cut. The desired level of harvest

other objectives related to forest diversity, social and economic environment, and silviculture		(volume) for many species is not attainable for a period of 100 years due to constraints imposed by wildlife habitat supply and the current age class area structure.
Objective B2: Community well-being: To ensure that existing mill complexes are fairly supplied to the extent of the available resource in accordance with Appendix E of the SFL.	**MET**	Volume commitments were met in the FMP modeling projections. Market conditions have prevented the full utilization of the available harvest volume during the audit term.
Objective B3:Community well-being: To ensure that volumes and species that are not currently utilized by existing mill complexes are allocated in the plan so as to be available for new industrial developments. This does not include allocations in the other hardwood, red pine or white pine forest units which are deemed to be too scarce on the forest currently, to sustain commercial harvesting operations.	**MET**	Full allocations of all forest units were available for harvest. Allocations of volumes and species not currently utilized were licenced to new industrial developments including Rentech for wood pellet production and Precision Wood Design for specialty wood production.
Objective B4:Harvest levels: Ensure an accurate forecast of volume from harvest allocations.	**MET**	A volume of 133.8 m^3/ha was planned to be harvested in the 2009-14 term; 144.3 m^3/ha was actually harvested resulting in 108% of planned volume harvested per hectare during the first period of the plan.
Objective B5: Community well-being; Forest Road Density: To balance new construction with road abandonment to	**MET**	To date no roads have been decommissioned, abandoned or transferred to the MNRF. Road densities are within the proposed FMP road density

maintain a relatively constant road density on the forest		targets.
Objective B6: Harvest levels, community well-being; Crown Forest Available for Timber Production: To maintain the land available for timber production by minimizing land lost to roads, landings, and debris, by advocating to minimize any further reductions of the land base for other uses, by rehabilitating tertiary roads and by managing to ensure continued productivity of all harvested lands	**MET**	The area of Managed Crown Forest for timber production meets the desirable level in the long term. Forest operations were conducted consistent with conditions approved in the 2009 FMPM including an effective program for slash / chip management, and related planting program. Our audit found that an effective renewal program was implemented and areas renewed by planting were adequately stocked.
Objective B7:Community well-being; Traditional Crown Management Unit Operators: To provide harvesting opportunities for the logging contractors that traditionally operated in the Upsala and Shebandowan portions of the Crown Management Unit.	**MET**	Each Traditional Crown Management Unit Operator was allocated their traditional quota for harvest. These quotas were exceeded during the first five years of the 2009 FMP.
Objective B8: Market Condition: To develop a harvest utilization strategy including thresholds that will allow for harvest operation flexibility while ensuring long term forest health and plan Sustainability.	**MET**	RFP implemented the strategies approved in the FMP for harvests in mixed wood stands. Utilization of hardwood species improved during the audit term.
Objective B9: Healthy forest ecosystems; Protection of Resource Based Tourism	**MET**	There were no recorded non-compliances due to impacts to areas of concern related to

Values: To identify values, negotiate with tourism operators, and develop prescriptions that govern how forest management activities interact with resource based tourism values. Prescriptions will be developed that respect the importance of both industries and seek to not only mitigate harm but to find mutually beneficially solutions to potential conflicting situations.		resource-based tourism values. AOCs effectively protected identified tourism values.
Objective B10: Healthy forest ecosystems; Protection of Other Commercial Forest Dependant Values: To identify values, understand risks, discuss with stakeholders, and develop prescriptions that govern how forest management activities interact with other commercial uses of the forest (e.g. bait fishers, trappers, mineral exploration industry). Prescriptions will be developed that respect the importance of all commercial ventures and seek to not only mitigate harm but to find mutually beneficial solutions to potential conflicting situations.	**MET**	There were no recorded non-compliances due to impacts to other commercial forest resource dependant values.
Objective B11: Forest Cover – values dependent on the Crown forest; Protection of Recreational, Spiritual, Cultural, Aboriginal, and Aesthetic Forest Dependant Values: To identify values, understand	**MET**	There were no recorded non-compliances associated with forest management activities in areas where recreational, spiritual, cultural, aboriginal, and aesthetic values were present. The FMP appropriately protected identified values through AOC

risks, discuss with stakeholders, and develop prescriptions that govern how forest management activities interact with other non-commercial values of the forest. Prescriptions will be developed that respect the importance of all uses of the forest and seek to not only mitigate harm but to find mutually beneficial solutions to potential conflicting situations.		prescriptions. .
Objective B12: Healthy forest ecosystems; Compliance with all Applicable Policies and Legislation: To strive to be fully compliant with all governing legislation, policies, and practices as identified in this forest management plan	**MET**	The in-compliance rate during the audit term was 99.5%.
Objective B13: Community well being; Provision of Opportunities to Contribute to Plan Development: To ensure that opportunities are provided for aboriginal communities to be apprised of, and involved in FMP development.	**MET**	Aboriginal communities were invited to participate in the development of the Phase I and II FMPs. A First Nation representative sat on the DRMCAC and the Planning Team. Representatives from the First Nations communities also attended the first Open House.
Objective B14: Community well being; Provision of Opportunities to Contribute to Plan Development: To ensure that the LCC is provided with the opportunity to contribute in a meaningful way to plan development.	**MET**	The DRMCAC stated that LCC members were consulted during plan development and that their inputs to the planning process were appropriately considered.

C) FOREST HEALTH AND ECOLOGICAL INTEGRITY		
Objective C1: Forest Cover – values dependent on the Crown forest; Maintaining the Health and Integrity of Aquatic Ecosystems: To develop prescriptions for harvest, road construction and silviculture which recognize the risks to aquatic ecosystems and mitigate those risks through the application of best management practices.	**MET**	The target rate for this objective was 95% compliance. A 99.5% in-compliance rate was achieved.
Objective C2:Forest Cover – values dependent on the Crown forest; Maintaining the Health and Integrity of Terrestrial Ecosystems: To develop prescriptions and apply best practices designed to maintain or enhance forest productivity, and ecological integrity	**MET**	There were no recorded instances of non- compliance for site damage
Objective C3: Adaptation to Climate Change: To ensure that forest management operations recognize and are prepared to adapt to the impacts of climate change	**MET**	In response to climate change concerns regeneration and forest health is monitored. New guidelines and practices are developed in response to new science.
D) SILVICULTURE		
Objective D1:Effective Forest Renewal. To ensure that all harvested areas are reforested using the most effective and cost efficient means to achieve stand development objectives as outlined in the Silvicultural Ground Rules and Modeling	**MET**	This objective has two indicators: 1) Percent of harvested forest area assessed as free-growing. A target for this objective is 100% of the harvested forest area assessed as free-growing during the period of

Assumptions		the plan. 94% of the area assessed was declared FTG and successfully regenerated. Although 94% does not meet the target level of 100%, it is a high level of achievement and is a substantial improvement from 87% in the last plan. 2) Percent of harvest area assessed as fully meeting regeneration standards. The direct comparison of silviculture success to Silvicultural Ground Rules has not been an effective representation of actual silvicultural success in the field. Resolute has adopted a method of assessing the silviculture success by forest type groupings (Conifer Dominated, Conifer Dominated Mixedwood and Hardwood Dominated). This approach had been approved by the District MNRF. Based on the aggregate grouping of forest units the silviculture success is 80.2%.
Objective D2: Effective Forest Renewal: To contribute to the Legacy Forest initiative by creating a large area of recent, conifer cutover in which to conduct operational trials of very intensive silvicultural treatments.	**NOT MET**	This indicator was not met as the project was discontinued. Resolute continues to support other research initiatives with Lakehead University.

Appendix 3

Compliance with Contractual Obligations

Licence Condition	SFL Holder Performance
Payment of Forestry Futures and Ontario Crown charges.	As of March 31, 2015 accounts were in arrears as follows; Crown Charges Payable - $ 10,615.17. Forestry Futures - $ 1,068.80.
Wood supply commitments, MOAs, sharing arrangements, special conditions.	Wood supply commitments were met.
Preparation of FMP, AWS and reports; abiding by the FMP, and all other requirements of the FMPM and CFSA.	All documents and reports were completed with FMPM content and submission requirements being met. Signed certification pages for some of the AWS were not available in the offices of the auditees (Recommendation # 5)
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM.	Inventories and information collection was completed as required and FIM requirements met.
Wasteful practices not to be committed.	No incidences of wasteful practices were observed during the field site inspections
Natural disturbance and salvage SFL conditions must be followed.	No salvage operations were required.
Protection of the licence area from pest damage, participation in pest control programs.	No pest control programs were required.
Withdrawals from licence area.	No areas were withdrawn.
Audit Action Plan and Action Plan Status Report prepared.	The Action Plan was submitted late. (Recommendation # 4). The Action Plan Status Report was submitted on time.
Payment of forest renewal charges to Forest Renewal Trust (FRT).	Payments to the Forest Renewal Trust are in arrears ($ 9,468.55).
Forest Renewal Trust eligible silviculture work.	Our sample of the silvicultural work invoiced under the Specified Procedures Account indicated that the silvicultural work was completed as invoiced.
Forest Renewal Trust forest renewal charge analysis.	Forest renewal charge analyses were completed.
Forest Renewal Trust account minimum balance.	The minimum balance was not maintained for all years of the audit term. On March 31, 2011, there was a shortfall of $ 45,863.20. This

	shortfall was addressed in July, 2011.
Silviculture standards and assessment program.	Silvicultural standards were met and assessments were completed.
Aboriginal opportunities.	A wide range of opportunities were provided. .
Preparation of a compliance plan.	Compliance plans were completed as required.
Maintenance of records, including maps, of the amount of Eligible Silviculture Work implemented and the cost.	A sample of sites invoiced in the "*Forest Renewal Trust Specified Procedures Report*" was visited to ensure conformity between the invoiced and actual activities. No non-conformities were observed.
The Company shall meet the silvicultural standards on all Class X and Y Lands.	No X or Y lands are present.
The Company shall carry out tending treatments on Class Z Lands as required by the Minister.	There are no Class Z lands.
The Company shall assess and report on the achievement of its regeneration efforts.	Monitoring programs were in place and reporting on regeneration efforts was provided in the Annual Reports. Overall regeneration success was high (94%) but the reported silvicultural success rate was low (43%). When silvicultural success was assessed on the basis of broader forest type groupings the level of success was much higher (80%). There is not a significant backlog in the area requiring FTG survey.
Internal compliance prevention/education program.	Resolute has implemented an effective EMS program.
Compliance inspections and reporting; compliance with compliance plan.	A strategic compliance plan and annual plans were developed. Field implementation reflected the direction contained in the plans and the SFL holder completed an appropriate number of inspections relative to the level of operations that occurred on the Forest.
SFL forestry operations on mining claims.	Requirements were met.
SFL or Agreement on Extension Recommendation.	The licence has not been extended due to a backlog at MNRF (the last extension was in 2006). We were informed that MNRF staff are

	working to address the issue.

Appendix 4

Audit Process

This IFA consisted of the following elements:

Audit Plan: An audit plan describing the schedule of audit activities, audit team members, audit participants and the auditing methods was prepared and submitted to Resolute FP, MNRF Thunder Bay District, Regional MNRF, Forestry Futures Trust Committee and the LCC Chair on March 2015.

Public Notices: Public participation in the audit was solicited through the placement of a public notice in the *Thunder Bay Source* (May 28 and June 4, 2015) prior to the field audit. These notices invited the public to provide comments and/or complete a survey on the Arbex website. Additionally, a random sample of 80 of the individuals and organizations listed in the 2009 FMP mailing list were sent a letter and a survey questionnaire which invited comment on the forest management activities of the forest manager during the audit term.

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

All LCC members received letters and follow-up telephone calls with an invitation to participate in the audit process. An audit team member provided information at a full LCC meeting (May 13, 2015). Two LCC representatives attended 3 days of the field audit.

Individual interviews (face-to-face or telephone) were held with tourism operators and interested stakeholder groups and/or individuals with specific interests on the DRMF. Contact with stakeholder groups was initiated by the auditor, and/or occurred in response to public outreach initiatives during the audit (i.e. newspaper notices).

Field Site Selection: Field sample sites were selected randomly by the Lead Auditor in March 2015. Sites were selected in accordance to the guidance provided in the IFAPP (e.g. operating year, contractor, geography, forest management activity, species treated or renewed, and access) using GIS shapefiles provided by the Resolute FP. The sample site selections were finalized with Resolute and MNRF District Staff at the Pre-Audit Meeting (April 15, 2015).

Site Audit: The audit team spent 5 days on the DRMF in June conducting the field audit, document and record reviews and interviews. The field audit sampled a minimum 10% of the forest management activities (including road construction and maintenance) that occurred during the audit term (see the IFA Field Sampling Intensity on the DRMF below).

The audit team also inspected the application of Areas of Concern prescriptions, aggregate pit management and rehabilitation and water crossing installations. Areas listed in the "*Road Construction and Maintenance Agreement*" and sites invoiced in the "*Forest Renewal Trust Specified Procedures Report*" were visited to ensure conformity between invoiced and actual activities.

The field inspection included site-specific (intensive) and landscape-scale (extensive helicopter) examinations. Although Individual sites were selected to represent a primary activity (e.g. harvesting, site preparation); all associated activities that occurred on the site were assessed allowing the audit team to augment the planned sampling intensity.

Report: This report provides a description of the audit process and a discussion of audit findings and conclusions. Recommendations are directed at deficiencies in forest management and associate processes that require a corrective action.

Procedures Audited by Risk Category

Principle	Low Risk			Medium Risk			High Risk	Comments
	Applicable (#)	Selected (#)	% Audited	Applicable (#)	Selected (#)	% Audited	Audited (#) (100% Audited)	
1. Commitment	0	0	0	2	2	100	0	All procedures were audited.
2. Public Consultation and Aboriginal Involvement	0	0	0	6	6	100	2	All procedures were audited.
3. Forest Management Planning	7	5	71	12	11	92	41	The following procedures were not audited; 3.2.1., 3.2.2. & 3.6.2.
4. Plan Assessment & Implementation	1	1	100	1	1	100	10	All procedures were audited.
5. System Support	0	0	0	1	1	100	1	All procedures were audited.
6. Monitoring	0	0	0	7	7	100	11	All procedures audited.
7. Achievement of Management Objectives and Forest Sustainability	0	0	0	2	2	100	15	All procedures audited.
8. Contractual Obligations	0	0	0	2	2	100	5	All procedures were audited.
Totals	8	6	85	33	32	99	85	

IFA Field Sampling Intensity on the Dog River-Matawin Forest[34]

Activity	Total Area (Ha) / Number	Planned Sample Area (Ha)	Actual Area (Ha) Sampled[35]	Number of Sites[36] Visited	Percent Sampled
Harvest	20,040	2,004	1,927	35	10
Renewal (Planting)	12,470	1,247	1,398	37	11
Renewal (Seeding)	640	64	64	3	10
Renewal (Natural)	7,790	779	785	15	10
Site Preparation (Mechanical)	8,480	848	1,027	21	12
Site Preparation (Chemical)	960	96	122	2	13
Aerial Tending	10,180	1,018	1,045	20	10
Spacing	1,980	198	252	8	13
FTG	15,640	1,564	1,584	28	10
Specified Procedures Report Sites	16,412	3,282	3,050	26	18
Water Crossings (# of Crossings)	150	14		14	10
Forest Resource Aggregate Pits (# of Pits)	132	13		13	10

[34] During the field audit we observed numerous areas where AOCs had been implemented in either linear buffer strips or in association with an identified value. We cannot provide an accurate estimate of the sample intensity given the linear nature of many of the buffers. All AOCs associated with sample sites were observed. These included riparian reserves and nest buffers.
[35] Not every hectare of the area sampled is surveyed, as this is not feasible.
[36] Sites are where the activity was sampled as the primary activity.

Summary of Consultation and Input to the Audit

Public Stakeholders

A public notice stating the purpose of the IFA and soliciting public input in the audit was placed in the Thunder Bay Source newspaper on May 28th and June 4th. The notices invited interested individuals to contact the audit firm with comments or complete a survey questionnaire on forest management during the audit term on the Arbex website.

A random sample of 80 individuals and/or organizations on the Phase II FMP mailing list were sent a letter and the survey questionnaire in May. An additional sample of stakeholders was contacted directly by telephone. Individuals interviewed included tourism operators, anglers and hunters and field naturalists.

Six survey responses were received and five stakeholder interviews were conducted. The majority of individuals indicated their satisfaction with the forest management activities of the SFL holder and the MNRF. Concerns expressed included the use of herbicides in forest management, the maintenance of sight line buffers on lakes and roads, the sustainability of forest harvesting and a desire for continued road access for hunting.

SFL Holder

Resolute FP staff and a representative of their principal forest management service provider participated directly in the field audit and were interviewed during the course of the audit. Issues and concerns expressed by the SFL holder related primarily to the issue of long term wood supply and concerns with respect to the timing of the delivery of the FRI. Other general comments included:

- Some confusion with respect to the MNRF transformation process and understanding of the division of MNRF responsibilities

- A concern with the time required to obtain decisions from MNRF and a perceived lack of understanding by MNRF of the impact of such delays on Resolute operations..

- Satisfaction with the level and effectiveness of communications with MNRF compliance staff.

- Satisfaction with the communications and the involvement of the DRMCAC in the planning process.

- Concern with the negative portrayal of RFP in the media by a large environmental organization and the implications of negative media campaigns on company operations, markets and certification initiatives.

MNRF

MNRF District staff had a limited involvement in the field audit due to staff changes as a result of the transformation process and the leave of absence of a key staff member. Due to these circumstances audit attendees had little or no experience on the Forest. Telephone interviews were conducted with the MNRF Management Forester, the MNRF Regional Forest Management Specialist and a Regional Forest Operations Specialist. The Lead Regional Representative attended a portion of the field audit and was present for key audit meetings. Issues and concerns identified included:

- Implementation issues associated with the MNRF transformation process had created confusion with respect to the division of responsibilities for some activities.

- The transformation process had placed a number of individuals in positions where they had little or no experience.

- General confidence that, over time, new responsibilities and the division of labour across the MNRF would be sorted out with the end result being a more effective field presence for the organization.

- Satisfaction with the ongoing and effective communications between MNRF and Resolute.

- Concerns about the timeliness of FRI information relative to the planning process

Local Citizens Advisory Committee (DRMCAC)

Members of the LCC were advised of the audit at regular meeting of the LCC on May 13th. Each LCC member was also sent a letter which invited their participation in the audit process. Eight members were interviewed and two members attended the field audit.

Comments and concerns expressed by the LCC respondents included:

- Satisfaction with the relationship between the LCC, Resolute and the MNRF. The relationship was characterized as respectful and productive.

- Satisfaction with the overall management of the Forest.

- A concern that the general public did not understand the complexities of forest management and an opinion that there would be more support for forestry if there was a better understanding of these complexities.

- Concern with the negative portrayal of forest industry by large environmental organizations and the potential for negative impacts on the local economy.

- A concern that MNRF downsizing had made it difficult for it to meet its legislated mandate.

First Nations & Metis Organizations

The LDML and FW First Nations communities and Metis organizations with an interest in the DRMF received an invitation by mail inviting comments on forest management during the audit term and participation in the field audit. A meeting was held with two representatives of the Red Sky Independent Metis Nation. A telephone discussion was also held with a member of the Fort William First Nation. Concerns expressed included;

- A concern over the use of herbicides in forest management and the protection of SAR species during harvest operations.
- A concern over the protection of cultural and heritage values in the forest management planning process.
- A concern for the renewal of harvested areas.

Overlapping Licencees

One harvest contractor was interviewed. The individual indicated satisfaction with the forest management process on the Forest and felt that a good relationship existed between contractors and the MNRF and RFP. Concerns expressed related to:

- Market conditions for forest products in general.
- Concern with the negative portrayal of forest industry by environmental organizations and a perceived lack of support for forest industry by the government.

Appendix 5

List of Acronyms Used

AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
B&S	Barren and Scattered
BMP	Best Management Practice
B.Sc.F.	Bachelor of Science in Forestry
CFSA	Crown Forest Sustainability Act
DRMCAC	Dog-River Matawin Citizens Advisory Committee
DRMF	Dog River-Matawin Forest
EMS	Environmental Management System
ES	Ecosite
FIPortal	Forest Information Portal
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FN	First Nation
FOIP	Forest Operation Inspection Program
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FRL	Forest Resource Licence
FRT	Forest Renewal Trust
FSC	Forest Stewardship Council
FTG	Free-to-Grow
Ha	Hectares
IEA	Individual Environmental Assessment
IFA	Independent Forest Audit

IFAPP	Independent Forest Audit Process and Protocol
KMS	Kilometers
LCC	Local Citizens Advisory Committee
LTMD	Long Term Management Direction
LDML	Lac De Milles Lac First Nation
m^3	Cubic Metres
MECC	Ministry of Environment and Climate Change
MNRF	Ministry of Natural Resources and Forestry
NDPEG	Natural Disturbance Pattern Emulation Guideline
NRS	Not Satisfactorily Regenerated
RFP	Resolute Forest Products
R.P.F.	Registered Professional Forester
SAR	Species at Risk
SFI	Sustainable Forestry Initiative
SEM	Silvicultural Effectiveness Monitoring
SEIM	Socio-economic Impact Model
SFL	Sustainable Forest Licence
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rule
SIP	Site Preparation
SPR	Specified Procedures Report
STP	Silvicultural Treatment Package
VS	Versus
WTS	Woodlands the System

Appendix 6

Audit Team Members and Qualifications

Name	Role	Responsibilities	Credentials
Mr. Bruce Byford R.P.F. Arbex Forest Resource Consultants Ltd.	Lead Auditor Forest Management & Silviculture Auditor	Audit Management & coordination Liaison with MNRF Review documentation related to forest management planning and review and inspect silviculture practices Determination of the sustainability component.	B.Sc.F. ISO 14001 Lead Auditor Training. FSC assessor training. 35 years of consulting experience in Ontario in forest management planning, operations and resource inventory. Previous work on 27 IFA audits with lead auditor responsibility on all IFAs. 27 FSC certification assessments with lead audit responsibilities on 7.
Mr. Al Stewart Arbex Senior Associate	First Nations & LCC Participation in Forest Management Process Auditor Forest Compliance	Review & inspect AOC documentation & practices. Review of operational compliance. First Nations consultation.	B.Sc. (Agr) ISO 14001 Lead Auditor Training. FSC assessor training. 44 years of experience in natural resource management planning, field operations, policy development, auditing and working with First Nation communities. Previous work experience on 27 IFA audits.
Mr. David Watton Arbex Senior Associate	Forest Management Planning & Public Participation Auditor	Review documentation and practices related to forest management planning & public participation. Determination of the sustainability component.	B.Sc., M.Sc. (Zoology) ISO 14001 Lead Auditor Training. 44 years of experience in natural resource management planning, land use planning, field operations, and policy development. Previous work experience on 26 IFA audits.

Mr. Trevor Isherwood R.P.F. Arbex Senior Associate	Silvicultural, Forest Management and Contractual Compliance Auditor	Review and inspect silvicultural practices and related documentation. Review and inspect documents related to contractual compliance.	B.Sc.F. Former General Manager of an SFL. 44 years of experience in forest management and operations. Previous work experience on 23 IFA audits.