

2014 NWT FIRE SEASON

REVIEW REPORT

EXECUTIVE SUMMARY

The Department of Environment and Natural Resources (ENR) Forest Fire Management Program (the Program) is responsible for the protection of human life, property as well as natural and cultural resources from wildfires. Specific activities include wildland fire prevention, wildland fire detection, wildland fire pre-suppression, wildland fire suppression and prescribed burning. The Program is coordinated by the Forest Management Division based in Fort Smith, NWT.

Twenty-year averages suggest the NWT should experience approximately 245 fires per year. The fire program is supported by an annual budget of approximately \$7.5 million and, on average, some 570,000 hectares/year of forest lands are affected by wildfires; equating to less than one percent of the forested land in the NWT.

In 2014, moderate to severe drought conditions, as well as some unusual meteorological conditions, resulted in the NWT experiencing a record fire season that involved 385 fires, \$56.1 million in cost and impacts on about 3.4 million hectares of forest resource.

Given the extraordinary extents of the 2014 fire season, and the level of public concern it caused, ENR conducted a review to determine lessons learned and to identify areas where improvements could be made to policies, practices and procedures.

This review saw the department host Open House meetings in virtually all forested NWT communities, engage with Aboriginal and community governments, debrief with key staff imported from other jurisdictions, hire expert consultants to undertake case studies and work with supporting agencies across the GNWT.

Overall, there was a general consensus that ENR responded effectively to the difficult challenges posed by the 2014 fire season and that its operational policies and procedures were sound. Most importantly, there were no serious injuries or fatalities to firefighters, residents or visitors.

Despite this general consensus, the review undertaken by ENR did highlight some areas where improvement could be made to the systems and processes currently in place. These areas were grouped into the six broad categories, three of which were identified as priority items.

1. Public Engagement (priority item)

There was clear recognition that the department should do more to ensure organized and proactive communications take place with the public, media and stakeholders. Specific items included the need to educate the public and media about the GNWT Forest Fire Management Policy, operations, practices and limitations. In addition, it was highlighted that there is a need to encourage more community and property-owners to take action to FireSmart their values-at-risk. Finally, it was identified that the department needs to improve how it keeps the public, media and other stakeholders informed during the fire season and during specific fire events.

The department is undertaking a number of actions aimed at addressing this issue. While those actions are outlined in detail in section 3 of the report, main elements include:

- Identifying a single departmental spokesperson for fire-related issues, questions or concerns.
- Providing the media with weekly and/or daily updates as the fire situation warrants.
- Providing daily fire update maps on-line
- Adjusting processes to ensure a post-season review and lessons learned assessment becomes an annual event, involving a broad group of stakeholders and the public.
- Aggressively promote the FireSmart program across the NWT through open houses, information sessions and media campaigns.

2. Safety (priority item)

While there were no serious injuries or fatalities during the 2014 fire season, some serious safety incidents indicate ENR needs to create a systematic and comprehensive process for managing safety risks and modernize existing safety practices.

Based on a review of relevant safety system documentation available in the NWT and other jurisdictions, a plan for the creation and implementation of a complete Safety Management System (SMS) was developed.

Some components of the system are being implemented for the 2015 fire season, including incident reports and risk analysis of incidents and communication protocols. Other important aspects of the SMS are being developed for the long term include additional safety training; development of guidelines to address fatigue issues and ensure appropriate 'work/rest' balances are maintained for fire-fighting personnel; improved reporting and recording system; and, an ongoing risk analysis and evaluation of incidents and preventative/corrective actions for improvement.

Main actions initiated include (see section 3 for detail):

- Implement an improved safety briefing and an incident reporting system for use during the 2015 fire season;
- Seek specialized expertise to aid in the finalization of a complete safety management system during the summer of 2015;
- Have a completed and comprehensive Safety Management System developed and in place by April 2017.

3. Human Resources (priority item)

It is often said that a forest fire may be fought from the air, but is actually extinguished on the ground. This 'on the ground' work is undertaken by people; people that are often far away from homes and families, and are typically working in very difficult conditions. It is with this in mind that the department's review looked at the area of Human Resources.

Inputs received from all engagement activities pointed to ENR increasing its support of the people involved in this important program. As a result of this input, the following main tasks have been initiated:

- A Review of Contracts – ENR will investigate the effectiveness of using contract crews as opposed to GNWT-staffed crews to fight fires. This work will begin immediately and recommendations flowing from it will be put in place in September 2015;
- GNWT Personnel – ENR will develop and maintain an inventory of appropriately trained GNWT personnel that can be drawn upon when ENR resources are fully engaged. This inventory, based largely on a 2014 call for assistance, will be established prior to the start of the 2015 season.
- Transition ENR to four-person Type 1 Wildland fire crews. ENR currently has 28 five-person Type 1 wildland fire crews. ENR will be transitioning to 36 four-person fire crews for the 2016 fire season; and,
- Increasing the pay rates for Extra Personnel (EFFs) for the 2015 fire season to support recruitment of wildland firefighters.

Other Themes

Operations

ENR is investigating strategies to build capacity during escalating incidents to ensure duty room, incident management teams and regional/territorial operations can grow quickly and effectively to meet operational requirements, including:

- Undertake a review and make improvements in duty room operations, duty officer training and qualifications and resource management tracking systems by April 2017;
- Undertake value-at-risk database updates and maintenance activities; and,
- Identify or create functional wildland fire modelling tools and procedures for short, moderate and long term fire behaviour prediction by April 2016.

Policies/Strategy

The Strategy for the Management of Forest Fire Responses is a working document which provides guidance for fire managers on implementation of the NWT Forest Fire Management Policy. A February 2015 review meeting led to some revisions being made to the Program Strategy to reflect current operational practices. The revised Strategy (dated April 2015) will be implemented for the upcoming 2015 fire season and will be further reviewed in the fall of 2015.

ENR has reviewed the *Grants and Contributions Policy* - Harvester's Fire Damage Assistance Program and will make changes so claimants and persons assisting with claims have a clearer understanding of the policy and guidelines such as harvester eligibility, what capital items are eligible for assistance, what occurs if a complete or partial harvesting area is affected by wildland fire and the period of eligibility for a claim. This will be completed in May 2015.

ENR will continue to review how other jurisdictions address the loss of hinterland property due to wildland fires and other natural disturbances. ENR will provide advice to government on how other jurisdictions in Canada address property losses from natural events and possible options for hinterland residents by January 2016.

Procurement

Procurement Shared Services (PSS) is working to establish Standard Offer Agreements and Supply Service Agreements to establish rates for various fire management equipment and services. PSS is also providing guidance on ways for ENR to improve its procurement and tracking of equipment and contract services. ENR and PSS will have the work completed by June of 2015.

Financial Practices

ENR support services staff have identified, and made improvements, in several areas including timecards, direct deposit arrangements and internal communications and tracking procedures for the 2015 fire season.

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1.0 INTRODUCTION

The Forest Management Division (FOREST MANAGEMENT DIVISION) of the Department of Environment and Natural Resources (ENR) is responsible for policies, planning and regulatory activities required for the stewardship, protection and sustainable management of forest resources in the NWT.

A very important aspect of FOREST MANAGEMENT DIVISION's responsibilities is the protection of human life, property, natural and cultural resources from wildfires. Specific activities include fire prevention, fire detection, fire pre-suppression, fire suppression and prescribed burning.

Based on a 20-year period, the NWT experiences an average of 245 fires per year. The annual budget for fire suppression is about \$7.5 million and, on average, some 570,000 hectares/year of forest resource are affected by wildfires.

In 2014, moderate to severe drought conditions, as well as some unusual meteorological conditions, resulted in the NWT experiencing a record fire season that started early and continued well into September. In total, the 2014 season involved 385 fires, \$56.1 million in cost and impacts on about 3.4 million hectares of forest resource.

To combat the 2014 fires, ENR imported dozens of fire crews (650 personnel in total) from across Canada (and Alaska) and borrowed personnel with fire-fighting experience from other GNWT departments to assist. Despite the unprecedented extent of the 2014 fire season, there were no serious injuries or fatalities for residents, visitors or firefighting personnel.

Given the severity of the 2014 fire season and the degree of public concern it created, ENR decided to conduct a review of its internal fire management strategy, policies and procedures to determine lessons learned and to identify areas where improvements could be made, starting in the 2015 fire season.

This document summarizes the findings from the ENR review and highlights the actions being taken to improve planning, training and communications, reduce risks and generally increase ENR's fire-fighting capabilities.

1.1 2014 Fire Season

Out of 385 fires, there was a monitored response on 259 fires and 126 fires were actioned (33%). Fires occurred within the boundaries of four communities (Kakisa, Hay River, Whati and Gameti) and eight other communities or developed areas experienced elevated levels of risk (Jean Marie River, Fort Providence, Behchoko, Wekweeti, Yellowknife, Fort Smith, Ingraham Trail and Sandy Lake).

With respect to property (i.e. values-at-risk), ENR undertook 93 value protection operations, most involving cabins, camps, lodges and homesteads. These efforts were largely successful, with minor losses and only two fairly significant losses in private property (Hoarfrost River and Moraine Point).

The \$56.1 million spent during the 2014 fire season can be broken down as follows:

- Aircraft – \$24.0 million
- Personnel – \$6.8 million
- Other operational costs – \$25.3 million

1.2 Review Process

ENR's fire management policies, practices and procedures are based on scientific knowledge and decades of firefighting experience, as well as local and traditional knowledge from both within the NWT and elsewhere in Canada (via the Canadian Interagency Forest Fire Centre).

Key documents guiding ENR's fire management activities include:

- NWT Forest Fire Management Policy (53.04);
- Strategy for Management of Forest Fire Response (May 2005); and,
- Required Planning for Wildfire Events (2009).

To conduct its review, ENR relied on the following inputs and activities:

- Twenty-four (24) Open House community meetings held across the NWT over the 2014/15 winter period;
- Broad engagement with Aboriginal and Community governments, Industry partners, operators and other stakeholders;
- Twenty-eight (28) Incident debriefings conducted with territorial and imported fire-fighting crews, Incident Command Teams and ENR field staff;
- A territorial debriefing of Forest Management Division and Regional wildland fire staff held in September;
- Presentations and discussions held at the Program's annual *Fall Wildfire Management Meeting*, held in Fort Smith from December 1-4, 2014;
- Work completed by three Wildland Fire Management Task Teams (established at the Fall Wildfire Management Meeting);
- A "Case Study of Wildfire ZF-007 in the Context of the 2014 Fire Season", completed by a team of external consultants;
- A "Confirmation of Moraine Point Fire Ignition on August 16 of 2014", completed by a team of external consultants;
- Discussions held during the Program's *Wildfire Management Policy and Strategy Meeting*, held in Yellowknife on February 11-12, 2015; and,
- Presentations and discussions held during the Program's annual *Spring Wildfire Management Meeting*, held in Hay River on April 14-16, 2015.

ENR's review resulted in the identification of a number of lessons learned and areas for improvement, which were then grouped into six main themes. Three of the themes, involving safety, public engagement and human resources, were considered priority items and assigned to a specific Program Task Team for further analysis and action.

Three other themes, involving issues related to operations, procurement and financial processes, were considered to be areas which can be addressed internally by ENR staff.

A summary of the lessons learned, by theme, is presented in section 1.3 below.

A more detailed discussion of each theme, including an issue statement, activities undertaken, results obtained and next steps, is provided in Section 2.0.

1.3 Summary of Lessons Learned

The key lessons learned from the review of the 2014 fire season are outlined below, by theme:

Public Engagement

There was clear recognition ENR needs to be more organized and proactive in its approach to communications and public engagement. Lessons were learned in a number of areas including:

- Informing the Public and Media – during a busy fire season when public concern is magnified, ENR needs to improve its methods and capacity for providing accurate updates to communities, the public and the media on the status of active fires and the actions being taken to combat the fires;
- Public and Stakeholder Engagement – there is a public expectation ENR will be able to protect all property, at all times, which simply isn't possible in an extreme fire season. ENR must be more proactive by engaging with local leaders, community residents and other stakeholders to explain its approach to fire management, including how it prioritizes and allocates its resources in order to protect values. Under the NWT Forest Fire Management Policy, the protection of human life take precedence over all other values;
- Community Protection Plans/FireSmart Program – preparing for the threat of wildland fire is a shared responsibility. Many communities and property-owners need to accept more responsibility to help in protecting their infrastructure or property through protection plans and/or FireSmart efforts. More effort is needed to get this basic message across and assist communities and property-owners in reducing their risks in the event of a wildland fire in their area; and,
- Coordinating with other key agencies – responsibility for specific communications and actions during a wildland fire event lies with several departments and agencies (ENR, MACA, Emergency Measures Office, Northwestel, NWT Power Corporation and the Department of Transportation, as examples). The experiences in 2014 highlighted the need for ENR to maintain clear communications channels and good relationships with other key agencies and organizations.

Comments and concerns expressed during the public engagement sessions are detailed in section 2.1 Public Engagement.

Safety Management System

While no serious injuries or fatalities occurred during the 2014 fire season, there were some safety concerns that could have been corrected through better planning and analysis of the fire environment in the field. There were also several fatigue issues because of the ongoing lengthy fire season where firefighters were often required to work up to nineteen (19) days consecutively rather than 14-day rotations as are defined under present work-rest guidelines. In addition, fire crews were often sent out on more long-term deployments than normal and many were away from their homes and families for long periods of time.

To enhance ENR's culture of safety, ENR – the Program is developing and implementing a full Safety Management System using a phased approach. Some priority components will be implemented in time for the 2015 fire season.

Human Resources

Prior to the 2014 fire season, ENR was planning to implement some significant changes to its methods for planning, training and deploying its wildland firefighting personnel. The experiences from 2014 brought some of these issues into sharper focus, resulting in several lessons learned:

- Human resource requirements – ENR needs more firefighters configured for initial attack and sustained action, three more fire technicians, two seasonal warehouse and a communications and public education specialist; and,
- Transition to four-person Wildland Firefighting crews – in the past, ENR has deployed 28 five-person crews (140 firefighters in total) stationed throughout the NWT. ENR is proposing to go to 36 four-person crews (total of 144 firefighters), which means more crews and more firefighters.

Policy / Strategy

The GNWT *Forest Fire Management Policy* provides guidelines and directions for wildland fire responses. ENR's *Strategy for Management of Forest Fire Response*, drafted in the context of government policy, is provides additional guidance on 12 operational aspects related to the management of wildland fires.

ENR reviewed its *Strategy for Management of Forest Fire Response* and identified some areas for revisions or further consideration. To assist in its efforts to improve communications with communities and other stakeholders, ENR will develop a plain language document (based on the contents of the revised Strategy) for use during public meetings and other outreach activities to help explain ENR's policy, practices and limitations regarding wildland fire management.

ENR is making revisions to the Harvester's Fire Damage Assistance Program guidelines to clarify some of the language so claimants and persons assisting with claims have a clearer understanding of the policy and guidelines such as eligibility, what capital items are eligible for assistance, what occurs if a complete or partial harvesting area is affected by wildland fire, and the period of eligibility for a claim. ENR is also reviewing other provincial fire agencies' policies on private property that may be lost or damaged due to natural catastrophic events.

Operations

Several operational (or technical) lessons were learned from the review of the 2014 fire season:

- Duty Desk Protocols – throughout the fire season, Duty Officers in five Regions plus the Territorial Duty Officer manage wildfire events over 60 million hectares of forested land base. While there are protocols and response guidelines for Duty Officers, the operational overload that often occurs in severe fire seasons may overwhelm the duty desk system at critical times;
- MODIS Interpretation – the availability of MODIS satellite imagery technology (infra-red fire detection) has provided a significant improvement to wildland fire management in the NWT. The MODIS hotspot fire detection system data is invaluable as a supplementary detection and monitoring tool for determining spatial fire incidence and subsequent fire growth information can be used as inputs to fire preparedness and fire suppression plans. However, the system cannot be relied upon to be current or precise in determining the location of a fire perimeter, especially given fire behaviour variation;
- Fire Management Value at Risk Database – ENR has developed an extensive value at risk (VAR) database to assist with setting priorities during wildfire events and to provide Duty Officers with a current assessment of fire management challenges if the value is threatened. The system has

been in place since the 1990s and is invaluable. The information in the system must be maintained on a regular basis to be useful. Regions will be updating the data in the system through the next year.

Procurement and Financial Processes

ENR identified several improvements that can be made in its procurement and financial procedures to ensure better tracking and management of equipment, materials and financial expenditures.

These include:

- Procurement training in the spring of 2015 for ENR staff by Procurement Shared Services;
- Preparation of a procurement checklist, by the spring of 2015, for use by ENR staff when developing contracts; and,
- Development of Standing Offer Agreements (SOA) the spring of 2015 for known fire management services.

2.0 WHAT WE HEARD

As outlined, information on the 2014 fire season was compiled from numerous sources including Public Open House meetings, Community and Aboriginal government engagement activities, debriefings of import crews and individuals, Program and Regional staff, Duty Officer documentation, Incident Reports, trip reports and other sources.

While some issues were identified (see Themes below), it should be noted there was a general sense (from ENR staff, communities, residents, imported teams etc.) that ENR responded effectively to the challenges of a difficult fire season and its operational policies and procedures are sound.

At its annual Fall Wildfire Management Meeting held on December 1-4, 2014, Program and Regional staff discussed a wide range of issues and concerns stemming from the 2014 fire season and identified and prioritized six main themes. Additional work was completed over the winter and the results were reviewed and discussed at the annual Spring Wildfire Management Meeting held on April 14-16, 2015.

Each theme is presented below, including an issue statement, the activities completed, the results obtained (to date) and next steps.

2.1 Public Engagement

Issue Statement

The experiences of the 2014 fire season resulted in the identification of several areas where improvements are needed, including:

- Media Relations. The importance of clear, consistent messages was emphasised. While ENR generally enjoys good relations with media outlets, the pace, intensity and duration of the 2014 fire season tested those relations. Some concern was also expressed about information (and misinformation) being put out by individuals via social media.
- Inter-departmental Communications. Responsibility for specific communications and actions during a wildland fire event lies with several departments and agencies (ENR, Emergency Measures Office, Northwestel, NWT Power Corporation and the Department of Transportation, as examples). The experiences in 2014 highlighted the need for ENR to maintain clear communications channels and good relationships with other key agencies and organizations. This illustrated the need for ENR to have pre-season meetings with other relevant departments and ensure continued communications throughout the fire season.
- Providing Information to the Public. Updated information, in the form of maps, was provided to affected communities on a regular basis. It was determined ENR needs to better communicate its fire management policies and explain how assessments are done for values-at-risk and how decisions are made on the allocation of resources for fire suppression. ENR also needs to improve its ability to provide map information that is as current as possible.

Activity Summary

At the annual Fall Wildfire Management Meeting in December, a four-person task team was created to help support ENR and the regional offices complete three activities:

1. Community Open House Meetings for all forested communities in the NWT;
2. Stakeholder engagement meetings with Aboriginal and Community Governments, relevant GNWT Departments and other industry stakeholders; and,

3. Development and dissemination of outreach materials.

Results

Engagement activities undertaken in the winter of 2015 took place in a number of open house meetings in the following Regions and communities:

- South Slave – Fort Smith, Fort Resolution, Enterprise, Fort Providence, Kakisa, Fort Smith and Hay River;
- North Slave – Yellowknife, Wekweeti, Whati, Gameti, Lutsel K'e and Behchoko;
- Deh Cho – Wrigley, Fort Liard, Fort Simpson, Nahanni Butte, Trout Lake and Jean Marie River; and,
- Sahtu – Deline, Tulita, Fort Good Hope, Norman Wells and Colville Lake.

Stakeholder engagement also occurred with specific aboriginal organizations, including the Salt River First Nation, Katlodeeche First Nation and Gwich'in Renewable Resource Board.

Additional engagement also occurred among a variety of industry and government organizations, including Northwestel, NWT Power Corporation, NWT Fishing Operators, Industry Tourism and Investment (ITI) and Municipal and Community Affairs (MACA).

Following is a summary of the feedback, comments, questions and concerns ENR heard:

Communications

- The NWTfire.com web site and Facebook page provide good information for the public and there were suggestions to make the technical type information more easily understood by someone not in the fire business;
- Some individuals recommended ENR may want to consider making use of other communications methods such as email lists, Twitter or community radio channels for getting information out into the communities;
- Several inquiries were made about obtaining maps of fire locations; and,
- There was a concern expressed the posting of pictures online by fire crew staff increased anxiety of community members.

Prevention

- Questions were asked on how to obtain assistance for FireSmart projects as well as if seasonal fire crews could be used for FireSmart efforts;
- Several community members expressed interest in knowing more about community protection plans and what measures could be put in place to protect communities. Information on the plans is not widely known by the people who attended the public meetings;
- Some communities inquired about the use of prescribed fire around communities to remove fuel;
- There was a question on who is responsible within communities to undertake fuel treatment projects; and,
- There were several comments about the use of fireguards around communities and if this is something that should be done.

Values at Risk

- Most members of the public who attended the open houses were interested in providing information on values and in understanding how ENR uses that information in its decision making;
- Questions were asked about whether steps are being taken to ensure the Value at Risk database is complete and accurate;
- Questions were asked if ENR would be protecting the new Forest Management Agreement areas;
- Some community members expressed the opinion that the onus should be on owners to FireSmart their cabins and that protection of communities is a higher priority; and,
- Questions were asked about what recourse do resident land owners have in the aftermath of a loss from wildfire.

Environmental Impact

- There were several community members that expressed concern on the impact fire could have on harvesting areas and caribou. Many would like to know if these areas can be assessed and protected;
- There was concern expressed by some individuals on the impact the morel mushroom harvesting that is expected to occur this summer will have on communities; and,
- Some individuals indicated that there may be less fish this year due to the ash from the fires getting in the lakes.

Operations

- Some community members wanted a better understanding of the types of fire fighters ENR hires as well as the training and fitness requirements of the fire crews;
- Some individuals expressed concern that ENR should be fighting more fires and more resources should be hired for this purpose.
- Several communities expressed a concern over the perceived lack of action on fires and the perception that fire crews “sitting in the community” should be out fighting fires;
- There were inquiries from some of the public on economic opportunities they may be able to access from the wildfire fighting “Industry”;
- Some communities sought information on purchasing their own firefighting equipment;
- Some concern was expressed about the restoration of fire guards from 2014 to limit access by non-residents to traditional harvesting areas;
- In the community of Kakisa, there was concern expressed about the security of the community during the evacuation;
- There were some people who wanted to know more about over-wintering fires and if ENR was going to scan in the spring;

- Some inquiries were made about training opportunities for fire fighters or other staff such as radio operators.
- An inquiry was made about how ENR investigates person-caused fires and if people get charged.
- Many community members expressed thanks and gratitude for the work ENR did last summer.

During the Spring Wildland Fire Management Meeting, ENR discussed the public and stakeholder feedback it received and identified how it could continue to improve its communications and public engagement efforts. These suggestions included:

- Engaging a communications professional to help develop a Fire Management Public Engagement Plan to better plan and organize ENR's wildland fire communications and engagement efforts. Key components of the plan could include identification and analysis of key audiences, development of key messages and information requirements, setting objectives, actions and schedules for specific communications and engagement activities and determining ways of measuring whether progress is being made over time;
- Establishing dedicated staff to serve as communications specialists to handle the dissemination of regular updates and other information to communities, the media and the public during a fire season and help take this responsibility off the shoulders of Duty Officers or other staff actively involved in fire monitoring and suppression efforts; and,
- Finding more effective means of engaging with community leaders and residents regarding ENR's fire management policies, practices and procedures. The results from the recent community engagement meetings were mixed, which suggests that there may be issues regarding advertising or notices of the meetings, wrong timing or scheduling, lack of interest during winter months, "consultation fatigue" etc.

Next Steps

ENR Forest Management Division is continuing to work on the development and dissemination of public outreach materials and investigating how it can improve its ability to communicate with affected communities during the fire season.

Some of the current initiatives include:

- A NWT Wildland fire brochure was created and is being distributed;
- ENR will present public service announcements on radio and television during the 2015 fire season;
- Updates are being made to NWTfire.com to reflect public needs and improve information;
- ENR is updating its social media site on Facebook to reflect information requests from the public and to provide for presentation of historical information on fire management in the NWT; and,
- Translation of fire information signage into the Tlicho language has been completed and ENR will continue with translation into the other aboriginal languages in 2015/16.

Some preliminary work has also been initiated to examine the "business case" for seeking additional resources that can be dedicated to increased communications and public engagement efforts.

ENR will prepare a schedule of specific public engagement activities that to be undertaken during the second half of 2015/16.

2.2 Safety

Issue Statement

While the 2014 fire season did not result in any serious injuries or fatalities, there was a general consensus that ENR needs to do more to ensure the safety of fire-fighting personnel. Two specific concerns were raised:

- Safety concerns were identified. While no actual injuries resulted, there is concern about the type of analysis done afterwards, what was learned and how incident reports (and the lessons learned) are managed and communicated internally in ENR and to relevant outside agencies such as WSCC; and,
- Fire fighters and support staff were often sent out on more long-term deployments than normal and many were away from their homes and families for long periods of time. There was a general consensus that this practice leads to firefighter stress and fatigue and the potential for individuals to experience impaired judgement and an increased risk of injury. It was also noted that this isn't just a concern with firefighters, it applies equally to Regional staff tasked with other duties such as wildlife, spills etc. where they may not be able to function properly after completing long rotations in a fire management role.

Activity Summary

At the annual Fall Wildfire Management Meeting in December, a three-person task team was created to lead the development and implementation of a Program fire operations safety management system (SMS).

The team started by compiling and reviewing the type of safety system documentation already in place in the NWT and in other jurisdictions. Based on this review, the team recommended a complete SMS be implemented with the following components:

1. ENR incident reporting flow chart.
2. Employee/employer incident reporting documents.
3. An ENR risk analysis chart.
4. A central database for report tracking.
5. A safety mantra for ENR staff.
6. Safety field guide booklet and associated safety materials.
7. Identify GNWT training calendar safety courses.
8. Identify costs/assess implications of the implementation of a safety culture.
9. A draft ENR “days of rest” and “hours of work” guideline.

Results

The task team prioritized the development of the following components of the SMS for use in the 2015 fire season:

- ENR incident reporting flow chart. This chart lays out a draft procedural reporting process for any incident that may occur. Key steps include the incident reporting and communication process, the Occupational Health and Safety Committee incident review and the development and distribution of the subsequent corrective action plan.

- Employee/employer incident reporting documents. An incident reporting template has been developed to be used for each reported incident. It includes the history, a root cause analysis and a corrective action plan. The corrective action plan will be distributed among staff and will serve to close out an incident.
- ENR risk analysis chart/process. The team is developing a risk analysis process to assess each incident based on the degree of risk and the extent to which it was controllable.
- Central database for report tracking. A temporary solution for report tracking has been developed using a shared folder on the ENR server. A more robust database will be developed during the winter of 2015/16.
- Safety mantra. The task team is developing a safety mantra, which will consist of the regular distribution of safety messaging. Draft messaging and the scheduling of the release of messaging is being determined.
- Days of Rest Guidelines. The team reviewed the existing guidelines and presented some draft revisions for initial comments. ENR will need to work with Human Resources to finalize these guidelines.

There was general acknowledgement the work completed helps for the short term but a significant amount of work remains to develop and implement a full safety management system (SMS) for the Program. Questions were also raised about the Program's capacity to undertake analysis of safety incidences and do trend analyses over time. There will be a requirement to employ an external system manager to maintain and manage the new SMS.

Next Steps

ENR has taken this initiative as far as it can without the support of additional outside expertise. An external contractor with specialized expertise will be secured in the summer of 2015 to assist ENR in completing and implementing the balance of the SMS components.

2.3 Human Resources

ENR originally considered moving to four-person crews (from five-person crews) for the 2014 fire season. That plan had to be adjusted as a result of the extraordinary 2014 fire season and contracts currently in place.

Issue Statement

As part of its original plan to move to four-person crews, ENR recognized an examination of its practices for planning, training and certifying its seasonal fire-fighters was needed. Discussions on the implementation of four-person crews prompted concerns about the number of crews to be stationed in the regions and how the transition would be managed. Other concerns about capacity shortfalls included the availability of personnel at the management/supervisor level, the number of trained (or experienced) radio operators available and the recognition that interest in training for EFFs seems to be much better when there are actual fires burning rather than at the start of the season.

In 2013, ENR hired the consulting firm AMEC to conduct an independent review of its wildfire and forest resources program training. In general, AMEC found ENR's training strategy and programs had numerous strength but improvements could be made. Five recommendations and sixty-eight action items were presented for consideration. Not all of the recommendations and action items pertain to fire

management functions. Some of the focus in the area of human resources will involve further consideration of, and eventual response to, the AMEC recommendations and action items.

Activity Summary

At the annual Fall Wildfire Management Meeting in December, a four-person task team was created to complete the following scope of work:

1. Review the resource allocation and capacity of the wildland fire management program.
2. Assess what resources (people, skill sets) are available versus what the Program needs (in the context of four-person crews).
3. Evaluate the fire management contracts, to prepare for renewals later in 2015/16.

Results

The task team broke the scope of work into a number of action items. Some items were completed while others are in process.

- Investigate and increase recruitment of Type 1 firefighters. ENR is proposing to use its Extra Personnel (EFF) program to increase recruitment of Level 1 firefighters. EFFs showing initiative and good potential will be encouraged to seek opportunities to become Type 1 firefighters or take other key positions in the wildland fire program.
- Pool of GNWT employees available to assist ENR. At the spring meeting, ENR discussed how it could better identify and train other GNWT staff, with some previous fire experience or relevant skill sets, to draw upon when ENR resources are fully engaged during a busy fire season. Some issues were noted for further consideration including assessing a candidate's experience and arranging training and determining who pays the individual's salary and expenses while working for ENR.
- Extra Personnel (EFF) pay rates. ENR is proposing to increase EFF pay rates to the same rate as GNWT casual positions.
- Transition to four-person crews. In the past, ENR had 28 five-person crews (140 firefighters in total) stationed throughout the NWT. Based on a review, ENR is proposing a shift to 36 four-person crews (total of 144 firefighters), which means more crews and more firefighters. The proposal would be for 24 Type 1 crews, which can be exported elsewhere in Canada, and 12 Type 2 crews, which can only work in the NWT.
- Human resource requirements. ENR identified a requirement for more firefighters as well as three fire technicians, two seasonal warehouse staff and a communications and public education specialist.
- Review of Service Contracts. ENR existing contracts to provide firefighting crews with contractors are in the final option year. ENR intends to hire an independent contractor to conduct a review this summer on the effectiveness of using contract crews and provide recommendations to help guide future decisions on the potential renewal of these contracts.

Next Steps

- Wildland Fire Human Resources Working Group. The Program is creating a working group that can continue to work on various recruitment, training and deployment issues for its firefighters and Incident Management Teams.

- HR Planning Committee and HR Plan. It is recognized there is much more work to be done to address barriers to staffing, improve staff retention and develop a comprehensive Human Resources Plan. Human resource capacity is an encompassing issue requiring the engagement of the ENR Human Resource Planning Committee.

2.4 Strategy / Policy

Issue Statement

Division and Regional staff reviewed the NWT Forest Fire Management Policy (the Policy) and Strategy for Management of Forest Fire Response (the Strategy) to determine if changes were warranted based on the experiences of the 2014 fire and general advancements in fire management knowledge and practices.

ENR is revising the *Grants and Contributions Policy* - Harvester's Fire Damage Assistance Program to clarify language so claimants and persons assisting with claims have a clearer understanding of the policy and guidelines such as harvester eligibility, what capital items are eligible for assistance, what occurs if a complete or partial harvesting area is affected by wildland fire, and the period of eligibility for a claim.

ENR is also reviewing how other jurisdictions address the loss of hinterland property due to wildland fires and other natural disturbances.

Activity Summary

At the annual Fall Wildfire Management Meeting in December, the participants discussed:

- If changes were needed in either the Policy or the Strategy; and,
- If the Policy and the Strategy are being interpreted and applied consistently among the regional offices.

On February 11-12, 2015, about 20 ENR staff and guests met in Yellowknife to conduct a detailed review of the Policy and the Strategy.

During the winter, ENR staff also discussed revisions to the Harvester's Fire Damage Assistance Program to better help harvesters recover from property losses and/or re-locate their harvesting activities.

Results

Significant issues related to the Strategy were discussed during the February review meeting, including:

- Values-at-risk. It was suggested additional details be added to assist fire managers prioritize different types of infrastructure and property and provide better guidance on the expectations for trying to protect natural resource or cultural values.
- FireSmart Programming. Clearer language in the Strategy was suggested as many felt communities and property owners are not taking sufficient actions to FireSmart their values and are still expecting ENR to protect or save their values from fire once they are at risk.
- Evaluation of forest fire potential. ENR has a separate document, Required Planning for Wildfire Events, which specifies four levels of fire and corresponding planning and response efforts. Work is currently underway at the national level to refine the use of levels of fire and planning

and response actions. Once this work is complete, ENR will examine and adopt any changes (to maintain consistency with other agencies in Canada and determine whether revisions to the Strategy are needed.

- Media plans and public education. The Strategy has one section that addresses media plans and another section that deals with public education. The discussion did not yield a clear consensus on whether changes should be made to the Strategy in these areas.
- Forest fire response strategies and actions. It was suggested more clarity was needed on the information that should be included in a formal Fire Response Plan in instances where the preferred response is delayed action or observation and monitoring.
- Training initiatives. There was discussion about some aspects of ENR's firefighter training and certification efforts but no specific suggestions for revisions to the Strategy.
- Severe forest fire seasons. Due to the expectation that drought conditions will continue into the start of the 2015 fire season, there was discussion about ENR's planning and preparations for the upcoming season. There was also discussion about ENR's approach to the initial attack (IA) on fires in areas with drought conditions, specifically that IA should be used on borderline fires instead of monitoring or delayed response since there is the possibility the fire is much more likely to quickly get out of hand under certain conditions.

Next Steps

A revised Strategy was presented and discussed at the Spring Wildland Fire Management Meeting. The revised Strategy is still in draft form and work will continue on it. Three main discussion points included:

- Agreement that the revised version (dated April 2015) would replace the old version (dated May 2005).
- A Task group will continue working on the revised Strategy for review at the Fall Wildland Fire Management Meeting in December 2015. The group will coordinate the review and work to improve the wording of the objectives within the Strategy (using the SMART format) so it is clearer and supports performance measurement.
- Relevant content from the revised Strategy will be used to produce plain-language public engagement materials (brochure, fact sheet etc.) to support the Program's on-going public education and engagement efforts.

ENR also reviewed the proposed final revisions to its Harvester's Fire Damage Assistance Program at the Spring Wildland Fire Management Meeting.

ENR will continue to review how other jurisdictions address the loss of hinterland property due to wildland fires and other natural disturbances. ENR will provide advice to government on how other jurisdictions in Canada address property losses from natural events and possible available options for hinterland residents by January 2016.

2.5 Operations

Issue Statement

ENR identified several operational issues for further consideration or improvement including Duty Desk protocols, interpretation of MODIS satellite imagery, updates to the Value-at-Risk (VAR) database, fire growth modelling and making better use of fire debriefings.

Activity Summary

ENR staff discussed these issues during the annual Fall and Spring Wildland Fire Management meetings and identified how improvements could be made.

Results

- Duty Desk Protocols. Duty Officers in five Regions plus the Territorial Duty Officer manage wildfire events over 75 million hectares of forested land base during the wildland fire season. While there are priorities and response guidelines for Duty Officers, the operational overload that often occurs in severe fire seasons may overwhelm the duty desk system at critical times. Communication protocols will be developed to assist duty officers in regions and other Territorial offices;
- MODIS Interpretation. The availability of MODIS satellite (infra-red) imagery technology has provided a significant improvement to wildfire management in the NWT. The MODIS hotspot fire detection system data are invaluable as a supplementary detection and monitoring tool for determining spatial fire incidence and subsequent fire growth information that can be used as inputs to fire preparedness and fire suppression plans. However, the system cannot be relied upon to be current or precise in determining the location of a fire perimeter, especially given fire behaviour variation.
- Fire Management Value at Risk Database. ENR has developed an extensive value at risk (VAR) database to assist with setting priorities during wildfire events and to provide Duty Officers with a current assessment of fire management challenges if the value is threatened. The system has been in place since the 1990s. While it is invaluable, the information may not always be up to date, including details on additional developments, condition of the surrounding forested area and, in particular, description of any FireSmart projects that contribute to value protection. Values will continue to be updated this summer.
- Fire Growth Prediction. ENR's Fire Behaviour Specialists have access to the Prometheus fire growth modeling program. However, there are some limitations to the use of this software for real-time fire growth modelling in the NWT. ENR recognizes it needs to develop better fire behaviour prediction tools and procedures to improve its fire management decision-making capabilities.
- Fire debriefings. ENR recognizes it needs to improve its recording of fire debriefings which, in turn, will better enable it to compile and review the debriefings and use the findings to improve future operations.

Next Steps

ENR is planning to complete the following actions during 2015/16:

- Undertake a review and make improvements in duty room operations, duty officer training and qualifications and resource management tracking systems.
- Undertake value-at-risk database updates and maintenance activities.
- Identify or create functional modelling tools and procedures for short, moderate and long term fire behaviour prediction.

2.6 Procurement and Financial Processes

Issue Statement

The severity and extent of the 2014 fire season also revealed some areas where improvements could be made in ENR/Forest Management's administrative, procurement and financial processes.

Activity Summary

During the Fall Wildfire Management Meeting in December, ENR staff identified the following issues for discussion and/or action:

- Administrative. Several issues were noted, including the reporting of employee claims to WSCC, the processing of timesheets for non-ENR GNWT staff (helping on the fire line) and "time crunches" caused by bi-weekly requirements to file Receiver General payments.
- Procurement. While ENR has established and effective processes for contracting aircraft, it was noted that nothing similar exists for the procurement of heavy equipment, camps, vehicles, labour etc.
- Expenditure Management and Control. Some concerns were noted regarding a lack of timeliness and/or errors being made involving the receipt of invoices from contractors and the processing and tracking of contracts and expenditures.

Results

- Procurement Shared Services is working to establish Standing Offer and Supply Service Agreements for various fire management equipment and services and is providing guidance on improvements ENR can make to its procurement and tracking of equipment and contract services.
- The Program support services staff has made improvements in several areas including timecards, direct deposit arrangements, internal communications and tracking procedures for the 2015 fire season.

Next Steps

During extremely busy wildland fire events, staff may be overwhelmed by operational demands and additional support should be provided during these key times to ensure all procurement and financial functions are completed.

ENR will consider options to identify and train support staff to assist in busy times.

3.0 ACTIONS ITEMS

This table summarizes the key actions and associated timelines ENR will follow to make on-going operational improvements and address items raised.

OBJECTIVES & ACTIONS		SHORT TERM (MAY 2015)	MID-TERM (APRIL 2016)	LONG TERM (POST 2016)
PUBLIC ENGAGEMENT				
1	A communications professional will be contracted to develop a Fire Management Public Engagement Plan		July 2015	
2	Undertake regional and community engagement		Ongoing	Ongoing
3	Participate in regional educational camps and workshops		June 2015	Ongoing
4	Improve social media communications and information sites (Nwtfire.com and Facebook)		July 2015	Ongoing
5	ENR will identify, train and develop additional Communications Specialists for assignment during fire events			
	- Acquire staff through mutual aid resources sharing arrangement		Ongoing	
	- Identify and train northern staff and specialists		June 2015	Ongoing
FIRESMART				
6	Promote the FireSmart Program through open houses, public sessions and media campaigns		Ongoing	
7	Lead development of integrated Wildland Fire Hazard and Risk Mitigation Strategies with public, communities and other government agencies			April 2017
SAFETY				
8	Implement new incident reporting, risk analysis and communications protocols	May 2015		
9	Contract a SMS specialist to advise and assist in the development of a		July 2015	

	comprehensive SMS plan			
10	Implement SMS system			April 2017
HUMAN RESOURCES				
11	Review Forest Fire Management Personnel Contracts			
	<ul style="list-style-type: none"> - Contract independent advice to evaluate current contracts for performance and effectiveness 		September 2015	
12	Enhance capacity through integration of other GNWT Department staff into the fire program			
	<ul style="list-style-type: none"> - Conduct a needs assessment of position needs 	May 2015		
	<ul style="list-style-type: none"> - Ascertain availability of staff from other Departments 	May 2015		
	<ul style="list-style-type: none"> - Develop and implement a training and development program to match staff availability with position needs 		April 2016	
13	Implement the four-person Type I Wildland Fire Crew model, and increase the number of available crews from 28-36		April 2016	
14	Increase key support staff including three Fire Technicians, two Seasonal Warehouse staff and a full-time Public Education and Communications Specialist at strategic locations across the NWT		April 2016	
15	Amend the Pay Rates for Extra Personnel (EFF) to recognize the value of the work, and promote recruitment of personnel to the wildland fire task.	June 2015		
NWT FOREST FIRE POLICY / STRATEGY FOR MANAGEMENT OF FOREST FIRE RESPONSES				
16	Implement the revised Strategy for Management of Forest Fire Responses	May 2015		
17	Update the Strategy for management of Forest Fire Response to the principle of Goals and SMART Objectives		December 2016	
ENR GRANTS AND CONTRIBUTIONS POLICY				
18	Update the Harvesters Fire Damage Assistance Program, to improve clarity for	June 2015		

	harvesters and Department staff in interpreting the program guidelines and eligibility			
19	Research and report back to the government on other jurisdictions' approaches to private property losses from natural events, and possible options for property owners in this regard		January 2016	
OPERATIONS				
20	Undertake a review and make improvements in Duty Room operations and Duty Officer Training.			
	- Review Duty Room Operations		September 2015	
	- Devise and Implement Duty Officer Training		April 2016	Ongoing
21	Implement training requirements as identified in the 2014 fire season review	June 2015	October 2015	Ongoing
22	Implement the recommendations in the NWT Forest Fire Training Strategy Review 2015 (AMEC Environment and Infrastructure) (ENR HR Planning Committee, Training Committee, OH&S Program Development, ICS Training and Qualifications, Forest Resources Training)		December 2015	Ongoing
23	In collaboration with PWS – Procurement Shared Services, improve the wildland fire procurement practices and tracking of resources and contract services	May 2015	May 2016	
24	In collaboration with FSS - Identify and improve on financial management practices in the wildland fire management program			
	- Streamlining the extra personnel (EFF) pay system	May 2015		
	- Updating reporting and tracking procedures for financial transactions	May 2015		
	- Identify continuing weaknesses in the current and updated tracking systems		April 2016	Continuing
25	Identify or create functional modelling tools			April 2017

	to support wildland fire behaviour specialist and fire managers in assessing landscape fire risks and impact -			
VALUES AT RISK				
26	Update the current database		July 2015	Ongoing
27	Identify means of modernizing and enhancing the database to match the needs of the wildland fire programs set out in policy		April 2016	