

APPENDED DOCUMENT 4

AERIAL HERBICIDE PROJECT PLAN

FOR THE

SUDBURY FOREST

April 1, 2018 to March 31, 2019

The Vermilion Forest Management Company Ltd.

Prepared and Submitted by: _____

Doug Maki

Doug Maki, R.P.F.
Silviculture Forester

Date: _____

June 4/2018

Approved by: _____

Ross Hart

Ross Hart
District Manager
Ontario Ministry of Natural Resources and Forestry
Sudbury District

Date: _____

June 21/2018

Package Contents

1. Aerial Herbicide Project Plan
2. Overview Map (1 – 11"x17" @ 1:400,000)
3. Operational Aerial Imagery Maps with Buffers (21 – 11" x 17" @ 1:15,840)

APPENDED DOCUMENT 4

2018/2019 AERIAL CHEMICAL SITE PREPARATION AND TENDING SPRAY PLAN FOR THE SUDBURY FOREST

1. Program Objectives:
 - a) To provide for a continuous and predictable supply of wood products by ensuring success of the regeneration program.
 - b) To prepare sites for a follow up planting treatment by controlling competition established on these sites and creating favorable microsites for the species of trees to be planted.
 - c) To release establishing conifer stands from competing herbaceous and woody vegetation which may prevent or delay stands from reaching free to grow status.
 - d) To protect and enhance the initial investment of established regeneration through the prudent use of aerial applications of herbicides for conifer release.
2. Treatment Area:

The gross area identified for treatment is 129 ha for site preparation and 1,857 ha for tending, respectively. Net-down for actual treatment area following field verification prior to treatment is expected to be approximately 1,300 ha. All project areas are conifer renewal forest types.
3. Alternative Treatment Approach:

No cost-effective long-lasting alternative to chemical vegetation control has been developed to date.
4. Technical name and formulation of the herbicides: VisionMax (PCP 27736) with active ingredient glyphosate and Garlon XRT (PCP 28945) with active ingredient triclopyr.
5. Carrier: Water.
6. Rates and Method of Application:

Application will be done using a helicopter-mounted boom and nozzle system. Application rate will be a maximum 5.0 L of product per hectare for VisionMax and 3.0 L of product per hectare for Garlon XRT. The total spray mix volume of product + water will generally be 35 L/ha in clearcut treatment areas and 50 L/ha for shelterwood treatment areas. Please refer to Table 1 for details.
7. Type of aircraft to be used:

Helicopter(s) with a minimum working payload capacity of 250 litres
8. Name of the project supervisor:

Doug Maki is the Vermilion Forest Management representative and project supervisor. Field operations will be managed by the application contractor.
9. Location of the treatment area:

All treatment areas are within the Sudbury Forest of the Ministry of Natural Resources and Forestry Administrative Sudbury District. For further details, please see attached maps.
10. Proposed timing of the activity:

Mid August to mid September.

11. Weather Requirements:

In order to minimize drift and maximize efficacy of the treatment, spraying will be targeted to occur within the following weather parameter guidelines:

- i) Winds 1 - 8 km/hour
- ii) Temperatures 5 to 24 degrees Celsius
- iii) Relative humidity greater than 50%
- iv) Rain - no spraying 2 hours prior to anticipated rainfall
- allow 2 to 3 hours after rainfall prior to application

12. Public Notification:

The Ontario Ministry of Natural Resources and Forestry will place ads in The Sudbury Star, Northern Life, and Le Voyageur newspapers 30 and 7 days prior to the August 15 anticipated start date to notify the public of the opportunity to view the spray plan at the VFM office or MNR district office.

Public Review of Mapped Spray Block Locations – After March 15, 2018

Notification of MOE Application for Spray Permit – June 15, 2018

Newspaper Ads 30 day Notice – July 15, 2018

Newspaper Ads 7 day Notice – August 8, 2018

Notification Signs on Main Access points – Not less than 24 hours but not more than 7 days prior to spraying each block. VFM will post signs in 3 languages: English, French and Oji-Cree.

13. MNRF/MOE Buffer Zones

Table 2 describes the areas of concern and buffer zones applied on the blocks to be sprayed. All buffer details are included on operational block imagery.

Table 1
2018 Sudbury Forest Aerial Spray Blocks

04-Jun-18

Location Reference	OBM	Block Label	Area ha	Product	Active Ingred kg a.i./ha	Prod. Rate L/ha	Total Prod L	Total Water L	Mix Appl Rate L/ha	Ttl Mix for Blk L	
SITE PREPARATION - VisionMax											
North River Elbow	17-51-518	VAS-01	78.7	VisionMax	2.7	5.0	393.6	2,361	35	2,755	
SITE PREPARATION - Garlon XRT											
Tanner	17-49-511	VAS-02	50.3	Garlon XRT	3.0	4.0	201.0	2,312	50	2,513	
Total Site Preparation:			129.0								
TENDING - VisionMax											
Marconi	17-51-521 17-52-521	VAT-01	547.6	VisionMax	1.6	3.0	1,642.9	17,524	35	19,167	
Marconi	17-51-521	VAT-02	43.3	VisionMax	1.6	3.0	129.8	1,384	35	1,514	
Gervais-Stobie Fork	17-51-521	VAT-03	12.1	VisionMax	1.6	3.0	36.3	387	35	423	
Gervais-Stobie Fork	17-51-521	VAT-04	8.6	VisionMax	1.6	3.0	25.9	276	35	302	
Gervais-Stobie Fork	17-51-521	VAT-05	11.3	VisionMax	1.6	3.0	34.0	362	35	396	
Spanish Arm km 24	17-49-520	VAT-06	167.8	VisionMax	1.6	3.0	503.4	5,369	35	5,873	
Spanish Arm km 17	17-49-519	VAT-07	42.5	VisionMax	1.6	3.0	127.5	1,360	35	1,487	
Creelman	17-49-519	VAT-08	46.3	VisionMax	1.6	3.0	138.9	1,481	35	1,620	
Moose Mtn	17-49-519	VAT-09	144.2	VisionMax	1.6	3.0	432.5	4,613	35	5,046	
Milnet	17-50-518	VAT-10	29.6	VisionMax	1.6	3.0	88.7	946	35	1,035	
Portelance km 3	17-50-518	VAT-11	47.0	VisionMax	1.6	3.0	141.1	1,505	35	1,646	
Wisner	17-49-517	VAT-12	59.5	VisionMax	1.6	3.0	178.4	1,903	35	2,081	
Rathbun	17-52-517	VAT-13	36.8	VisionMax	1.6	3.0	110.4	1,177	35	1,288	
Kuki Tracks	17-53-516	VAT-14	258.5	VisionMax	1.6	3.0	775.5	8,272	35	9,048	
Kuki Tracks	17-53-516	VAT-15	107.3	VisionMax	1.6	3.0	321.9	3,434	35	3,756	
Creelman km 10	17-52-513	VAT-17	12.5	VisionMax	1.6	3.0	37.4	399	35	437	
			1574.8				4,724.4				
TENDING - Garlon XRT											
Chain Lakes	17-53-514	VAT-18	6.3	Garlon XRT	2.3	3.0	18.8	295	50	314	
Awrey	17-52-514	VAT-19	26.3	Garlon XRT	2.3	3.0	79.0	1,237	50	1,316	
Awrey	17-52-514	VAT-20	63.4	Garlon XRT	2.3	3.0	190.1	2,978	50	3,168	
Killarney Tracks	17-51-511	VAT-22	31.4	Garlon XRT	2.3	3.0	94.3	1,477	50	1,571	
Delamere Powerline	17-53-511	VAT-23	15.8	Garlon XRT	2.3	3.0	47.4	743	50	790	
Lafreniere	17-53-511	VAT-24	71.4	Garlon XRT	2.3	3.0	214.2	3,355	50	3,569	
Wolseley	17-55-510	VAT-25	67.3	Garlon XRT	2.3	3.0	202.0	3,165	50	3,367	
			281.9				845.7				
Total Tending:			1856.7								

Total Project: 1985.7

Total VisionMax: 5,117.9
Total Garlon XRT: 1,046.8

Table 2**Areas of Concern and Buffer Zones for 2018 Sudbury Forest Aerial Spray Blocks**

04-Jun-18

Location Reference	OBM	Block Label	Identification of Buffers	Buffer
North River Elbow	17-51-518	VAS-01	Pond and stream	60 m
Tanner	17-49-511	VAS-02	Lakes, ponds, and streams	90 m
Marconi	17-51-521	VAT-01	Ponds, streams, and lakes	60 m
	17-52-521		Park boundary	30 m
Marconi	17-51-521	VAT-02	Lake	60 m
Gervais-Stobie Fork	17-51-521	VAT-03	Stream and pond	60 m
Gervais-Stobie Fork	17-51-521	VAT-04	Stream	60 m
Gervais-Stobie Fork	17-51-521	VAT-05	Stream	60 m
Spanish Arm km 24	17-49-520	VAT-06	Ponds and streams	60 m
Spanish Arm km 17	17-49-519	VAT-07	Ponds and streams	60 m
			Ponds and streams	30 m
Creelman	17-49-519	VAT-08	Lake, ponds, and streams	60 m
			Lake, ponds, and streams	30 m
Moose Mtn	17-49-519	VAT-09	Ponds and streams	60 m
			Ponds and streams	30 m
Milnet	17-50-518	VAT-10	Pond and stream	60 m
Portelance km 3	17-50-518	VAT-11	Lake and stream	60 m
			Non-Crown land	120 m
Wisner	17-49-517	VAT-12	Streams and ponds	60 m
			Non-Crown land	30 m
Rathbun	17-52-517	VAT-13	Pond	60 m
Kuki Tracks	17-53-516	VAT-14	Streams and ponds	60 m
			Non-Crown land	120 m
Kuki Tracks	17-53-516	VAT-15	Streams and ponds	60 m
Cleland km 10	17-52-513	VAT-17	Streams	60 m
Chain Lakes	17-53-514	VAT-18	Stream	90 m
			Non-Crown land	120 m
Awrey	17-52-514	VAT-19	Streams	90 m
Awrey	17-52-514	VAT-20	Streams and ponds	90 m
Killarney Tracks	17-51-511	VAT-22	Streams and ponds	90 m
Delamere Powerline	17-53-511	VAT-23	Streams and ponds	90 m
			Streams and ponds	90 m
Lafreniere	17-53-511	VAT-24	Streams and ponds	90 m
			Non-Crown land	120 m
Wolseley	17-55-510	VAT-25	Lake, ponds, and streams	90 m
			Non-Crown land	120 m

OPERATIONAL PLAN

2018 AERIAL CHEMICAL SITE PREPARATION AND TENDING PROGRAM

The objective of this plan is to ensure good operational control of the project to maximize effectiveness and to minimize risks of adverse off-target effects.

Aircraft

The project will be carried out using helicopters with a minimum lift-off capacity of 250 litres.

Organization

The contractor will supply the application boss. Doug Maki is the Vermilion Forest Management representative.

Herbicide Storage and Loading

The herbicide will be delivered to Gervais Forest Products in Falconbridge in 115 litre and 450 litre shuttles. The contractor will pump the chemical into storage tanks on mobile mix rigs at that site. Garlon XRT may only be available in 10 L jugs. Mixing of chemical and loading of aircraft will be done by the contractor.

Application Control

Control of herbicide placement will be done by ground check personnel, through visual observation of spraying from a distance. Pilots will be supplied with recent aerial imagery of the spray blocks with areas of concern clearly identified. All aircraft have AgNav GPS guidance systems that show the treatment area boundaries and record helicopter flight path including 'boom on' lines.

Maps and Records

The application boss will be responsible for:

- a) Recording all data required on the aerial spray load record sheet,
- b) Monitoring weather conditions at spray site and recommending whether or not to apply herbicide,
- c) Check daily the amount of herbicide delivered compared to the area treated, and
- d) Obtaining spray pilot's signature on control records verifying the area completed each day.

Helicopter Pad

Helicopter pads will be located as near to the spray blocks as possible to minimize ferry distance. Flight paths will be reviewed with the pilots along with emergency dump zones. A pump will be supplied by the contractor for wetting down the helicopter pad should dust require control.

Flight Paths - Dump Zones

Flight paths from the helicopter pad will be located to minimize travel over Areas of Concern. Flight paths within the spray block will run parallel to any Areas of Concern. Emergency dump zones will be located in the spray blocks or in cut over areas between helicopter pad and spray blocks away from the Areas of Concern.

Weather Parameters

Weather conditions on site will be monitored by the application boss. The following guidelines will be considered when determining appropriate spray windows:

- a) Temperature: 5 - 24 °C
- b) Relative humidity: Greater than 50%
- c) Wind speed: 1 - 8 km/h
- d) Rain: No spraying 2 hours prior to anticipated rainfall. Allow 2 to 3 hours after rainfall prior to application.

Mixing and Fueling

Both operations will be done by the contractor. Hot fueling will be permitted only on those aircraft having a closed refueling system.

Communications

Ground to spray aircraft communication must be available. The attached Safety Plan and Security Plan form part of this plan. A cellular phone will be on site at base camp to provide outside communications.

Application Rate of Chemical

Maximum application rate will range between 2.0 and 5.0 L of product per hectare. Please see Table 1 for prescription details.

Duties of Spray Block Personnel

- a) Removal of signs no sooner than 30 days after herbicide application in spray block is completed and no later than November 1.
- b) Location and marking of spray block boundaries where required.
- c) Observe from a distance herbicide application in spray block.
- d) Set-up and removal of road blockades as required.
- e) Radio communication re: weather, aircraft location and application of spray.

Project Supervisor Duties

- a) Have Operational Plan, Communications Plan, Security and Safety Plans in place,
- b) Notify any public within 1 km distance around spray area,
- c) Ensure "Notices of Aerial Spraying" signs are posted at all usual access points into designated spray blocks. Signs will be posted not less than 24 hours and not more than 7 days prior to application.
- d) Conduct daily briefing of project staff/and contractor, regarding safety and operational concerns conducted the night before or at end of each spray session.

Application Boss Duties

Ensures the following procedures are followed and tasks completed:

- a) Proper mixing of pesticide,
- b) Instructing assistants on safe handling of pesticides,
- c) Equipment operation and maintenance,
- d) Equipment and supplies at mixing site,
- e) Safe storage and handling of supplies,
- f) Security at landing zone and mix/load site,
- g) Calibration of spray aircraft,
- h) Daily mapping of areas and hectares sprayed,
- i) Maintain diary of staff involved, including exposure records,
- j) Daily record keeping,
- k) Training of staff in use of equipment and safety,
- l) Clean up of mixing/loading site after program, and
- m) Ensure equipment is cleaned, maintained and stored in preparation for next site.

Safety Officer Duties

- a) Review safety concerns at daily briefing.
- b) Ensure landing zone and mix/load site is safe and secure.

PUBLIC COMMUNICATIONS PLAN

2018 AERIAL CHEMICAL TENDING PROGRAM

Objective:

Provide district coordination for notification of aerial herbicide spraying operations and response to concerns.

Mailing List:

- a) Registered trappers who hold a trap line that contains a treatment block
- b) Bear management area licence holders whose area contains a treatment block
- c) Baitfish licence holders whose area contains a treatment block
- d) Mining claim holders whose claims are within treatment block
- e) Land use permit holders within the same township as a treatment block
- f) Private land holders whose property is within 1 km of a treatment block
- g) Work permit holders whose area is within the same township as a treatment block
- h) Municipalities where a boundary is adjacent to a treatment block
- i) Logging companies which may have active operations within 1 km of a treatment block
- j) Local health officials
- k) Government agencies including MNR, MOE, OPP, MOL
- l) First Nations with interest in or adjacent to the Sudbury Forest: Wahnapiatae First Nation, Capreol; Whitefish Lake First Nation, Naughton; Whitefish River First Nation, Birch Island; Wikwemikong Unceded Indian Reserve, Wikwemikong; Dokis First Nation, Monetville; Henvey Inlet First Nation, Pickerel River; Mattagami First Nation, Gogama; Temagami First Nation, Lake Temagami.
- m) Local Citizen's Committee members

Responsibilities of Vermilion Forest Management:

1. Compose company public notices for inclusion in MNR mailout.
2. Respond to correspondence solicited by public notification within 5 days.
3. Maintain a public comment recording sheet for verbal conversations.

Responsibilities of Sudbury District MNR:

1. Prepare bilingual notices for and arrange for 30 and 7 day newspaper notifications in advance of project commencement.
2. Prepare updated mailing list for parties identified in spray plan and mail the notices 30 days prior to project commencement.
3. Copy any correspondence received at the Sudbury MNR office related to the Aerial Spray Program for their files and immediately forward original to VFM.
4. Maintain a public comment record sheet for verbal conversations.

SECURITY PLAN

2018 AERIAL CHEMICAL SITE PREPARATION AND TENDING PROGRAM

Objectives

The objectives of the Security Plan are to ensure that members of the public are not accidentally sprayed or otherwise injured, there is no personal risk to project staff, there is no damage to or loss of equipment and materials, and that there are no delays in operations.

Security of Spray Blocks

- a) Public notification through advertisements placed in the Sudbury Star, Northern Life, and Le Voyageur 30 days and 7 days prior to both application periods.

This plan with accompanying maps will be available for public viewing at the VFM office, located at 311 Harrison Drive, Sudbury, after March 15.

- b) Notice of aerial spraying signs will be posted at all usual access points into designated spray blocks up to 7 days prior to application. Signs will be posted in English, French, and Oji-Cree. Maps indicating location of spray blocks will be at the VFM office.
- c) While spraying is in progress, manned barricades will prohibit access. These will be removed as soon as the spray session has ended.
- d) Following completion of the spray operation, signs posting the spray area will be left up for a minimum of 30 days. The signs will be removed by VFM no later than November 1st.
- e) Reconnaissance flights immediately prior to spraying the block will be flown by the contracted pilot to ensure that no one is in the spray block area, and also to become familiar with the block.
- f) In the event a person is sprayed, they will immediately
 - a) be provided with printed matter on the product,
 - b) be advised if they have any concerns, VFM will transport them to medical authorities for examination/consultation.

Security at Mixing Site/Helicopter Pad

The operations base and helicopter pad will be secured by prohibiting public access in order to prevent loss or damage of equipment and materials, personal risk to project staff, or delay/disruption of the operation.

- a) Mixing tanks and equipment will be subject to 24 hour/day VFM or contractor security.
- b) Mixing locations will be posted as pesticide mixing site with pesticide warning signs.
- c) Pesticide storage will be secure and placarded with a chemical storage sign.

May 28, 2018

All pesticide containers will be returned to a central storage area for safe storage. Empty containers will be picked up by the supplier. The herbicide product will be supplied in sealed reusable "Shuttle Containers". Storage area will be a minimum of 60 m from a waterway.

- d) Following completion of the spray operation, signs posting the spray area will be left up for 30 days minimum. Barricades will be removed as soon as spray sessions have ended.

