Generally Accepted Forest Management Practices

PREAMBLE

The Michigan Right to Forest Act, 2002 PA 676, establishes that forestry operations are valuable to the state's economy, provide jobs to its citizens, can be an effective wildlife management tool, are essential to the manufacture of forestry products that are used and enjoyed by Michigan citizens and benefit the general welfare of the State. These operations are also important to the regeneration and reforestation of our State's forests and the practice of sustainable forestry as defined in the Right to Forest Act.

In recognition of these values, the Right to Forest Act provides certain protections from nuisance lawsuits for forestry operations. Specifically, the Act provides that a forestry operation shall not be found to be a public or private nuisance if it conforms to "generally accepted forestry management practices" (GAFMPs).

The Act authorizes the Natural Resources Commission to adopt GAFMPs. In doing so, the Commission is to give due consideration to comment from the Department of Natural Resources and other interested persons, including specific organizations listed in the Act.

This document presents the recommendations of the Forest Management Advisory Committee (FMAC) to the Commission for what should constitute GAFMPs. The FMAC is a 19-member public body appointed by the Director of the Michigan Department of Natural Resources. The specific organizations listed in the Right to Forest Act are represented on the Committee and membership extends a wide range of forest interests including timber, university, environmental, recreational, and affected state and federal agencies (Appendix D).

STRUCTURE AND PURPOSE OF RECOMMENDATIONS

The Right to Forest Act recognizes that nuisance allegations can be based on, but are not necessarily limited to:

1. Visual changes due to the removal of vegetation or timber.
2. Noise from forestry equipment.
3. Removal of vegetation or timber on a forest adjoining the property of another landowner.
4. The use of chemicals normally utilized in forestry operations.

Our recommendations describe GAFMPs based on two overarching principles followed by a discussion of each of these categories. We recognize, as did the Legislature in passing the Right to Forest Act, that other forestry activities may give rise to nuisance concerns. We recommend that the need for additional GAFMPs be considered by the Commission during the annual review required by the Right to Forest Act.

Compliance with GAFMPs provides a defense to a lawsuit alleging nuisance. It is important to recognize, however, that failure to meet the terms of a GAFMP does not necessarily qualify as creating a nuisance. That is a legal determination that is decided by a court based on the facts of a specific case.

The GAFMPs are based on practices that promote sound management of a forest. They are not intended to be regulations or requirements nor are they complete silvicultural guidelines or management recommendations for any particular forest type. These recommendations do not replace the role of professional foresters or natural resource professionals nor do they serve as substitutes for acquiring sound forest management information.

To understand how to utilize the GAFMPs, it is important to understand what they are not[1]:

- They are not intended to be a substitute for obtaining professional assistance as needed to achieve forest management objectives, or meet appropriate engineering standards. They are suggestions, not construction standards or engineering specifications.
- They are not designed to help determine whether a particular forest management activity should or should not occur.
- They are not intended to address all forest management activities and all forest resources but are designed for the limited purpose of the Right to Forest Act.
- They do not address landscape scale considerations and issues. Landscape-level assessment, planning and management issues are complex, and beyond the scope of these recommendations.

These voluntary Generally Accepted Forest Management practices (GAFMPs) are intended to be used by forest landowners, managers and practioners carrying out forest management activities. The recommendations do not claim to be comprehensive for all circumstances but provide standards for forest landowners to follow when conducting forest management activities on their land.

[1] Adapted from: Minnesota Forest Resources Council. *Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers and Resource Managers.* 2005. Minnesota Forest Resources Council, St. Paul, Minnesota., p. 8

GENERAL PRINCIPLES

1. The GAFMPs are not intended to replace any existing legal requirements, including local ordinances, applicable to forestry operations. However, we believe that compliance with legal requirements is a component of generally accepted forestry management practices. Therefore, a forestry operation must be in compliance with applicable and relevant legal requirements to be in conformance with the GAFMPs.

2. The GAFMPs are not a substitute for a forest management plan. They are intended to encourage landowners to create a forest management plan with the assistance of a person with the appropriate professional expertise and to support implementation of the plan once it is in place. Therefore, a forest landowner who is conforming to a forest management plan developed through a third party certification program (i.e. Forest Stewardship Council, Sustainable Forestry Initiative or American Tree Farm System) or developed by a professional forester/natural resource professional (i.e. forest management plan, Forest Stewardship Plan) are considered to be in conformance with the GAFMPs outlined in this document.

VISUAL QUALITY
GENERALLY ACCEPTED FOREST MANAGEMENT PRACTICES

This section provides Generally Accepted Forest Management Practices (GAFMPs) to address visual changes to a forest due to forest management activities.
The visual changes due to the removal of vegetation or timber GAFMPs (Visual Quality GAFMPs) have been organized under the following three sensitivity classifications.

Most Sensitive[2]: Applies to travel routes and areas where significant public use occurs and where the visual quality is of high concern to typical users. Examples of such routes may include public highways, local roads, recreational lakes and rivers, designated recreational trails, areas that provide a high level of scenic quality, and residential and commercial areas.

Moderately Sensitive[2]**:** Applies to travel routes or recreation areas, not included in Level 1, where visual quality is of moderate concern to typical users. Examples of these routes and areas may include public highways and local roads, recreational lakes and rivers, and designated recreational trails that provide moderate to high scenic quality but less significant public use.

Least Sensitive[2]: Applies to travel routes or recreation areas, not included in Levels 1 or 2, where visual quality is of less concern to typical users. Examples of these routes may include public highways and low-volume local forest roads, nondesignated trails, nonrecreational lakes and rivers and agricultural or resource management areas.

Table 1 below provides visual quality GAFMPs using the sensitivity classifications described above.

[2] Minnesota Department of Natural Resources, (2006). Visual Sensitivity Classifications. Retrieved July 14, 2006, from Minnesota Department of Natural Resources Web site: http://www.dnr.state.mn.us/forestry/visual_sensitivity/index.html

Table 1: Generally Accepted Forest Management Practices for Visual Quality

		Sensitivity Classification*		
	Persons are using Generally Accepted Forest Management Practices for <u>Visual Quality</u> if they…	**Most Sensitive***	**Moderately Sensitive***	**Least Sensitive***
1	Adhere to all specifications in a forest management or timber harvest plan as prepared by a professional forester or natural resource professional.	X	X	X
2	Time the operations to minimize potential conflicts with regard to season and time-of-day when not precluded by other limitations.	X	X	
3	Implement a two or more staged or progressive harvests over a period of years so that regeneration masks the size of the total harvest area.	X	X	
4	Use clearcutting, shelterwood, or selection management systems when silviculturally appropriate, as determined by a professional forester or natural resource professional.	X	X	
5	Reduce length (distance) of regeneration harvests along roads and trails.	X	X	
6	Construct narrow, curved, or angle entrances to harvest areas.	X	X	X
7	Locate landings where minimally visible, where possible.	X	X	
8	Minimize the number of haul/skid roads/trails.	X	X	X
9	Do not dispose of trash on site and inspect area for trash at the end of operations.	X	X	X
10	Revegetate highly visible and erosion-prone areas as soon as possible after timber sale completion.	X	X	X

Continued on page 6

*See page 4 for definitions of sensitivity classifications

		Sensitivity Classification*		
	Persons are using Generally Accepted Forest Management Practices for <u>Visual Quality</u> if they…	**Most Sensitive***	**Moderately Sensitive***	**Least Sensitive***
11	Dispose of grubbed stumps and pushed-over trees from along roads and trails where visibility is an issue.	X	X	
12	Spread out soil and road building material to avoid berms and piles.	X	X	X
13	Construct roads with proper drainage to avoid erosion and gullying.	X	X	X
14	Utilize materials that will reduce mud tracking and dust on public roads and areas.	X		
15	Cut down broken, leaning, and jack-strawed trees. Pull hanging trees to the ground immediately. Do not leave tops from harvested trees lodged in residual trees.	X	X	X
16	Schedule operations or use slash to minimize rutting. Allowable rut depth and length is site-dependent.	X	X	X
17	Utilize all manufactured forest products; leave no unskidded/unforwarded wood piles in the woods or at the landings.	X	X	X
18	Cut small trees and shrubs in driving lanes, rather than driving over them.	X	X	
19	Avoid operating in advanced regeneration whenever possible.	X	X	X
20	Account for vistas when planning logging jobs.	X	X	X

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*See page 4 for definitions of sensitivity classifications

		Sensitivity Classification*		
	Persons are using Generally Accepted Forest Management Practices for <u>Visual Quality</u> if they…	**Most Sensitive***	**Moderately Sensitive***	**Least Sensitive***
21	Implement traffic control methods to reduce unauthorized access.	X		
22	Establish new plantations where rows are parallel to primary public roads.	X		
23	Conduct operations to encourage diversity of age/size classes and stand types.	X	X	X
24	Utilize Riparian Management Zone guidelines and the Michigan Departments of Natural Resources and Environmental Quality's « Water Quality Management Practices on Forest Lands » manual.	X	X	X
25	Implement sanitation and/or salvage harvests.	X	X	X
26	Maintain residual patches and scalloped sale area edges during regeneration harvests, following terrain and vegetation type boundaries.	X		
27	Remove slash within 50 feet from improved public roads (defined as controlled by federal, state, county, city, and local government agencies), in accordance with Part 519, 1994 PA 451.	X	X	X
28	Reduce slash height to less than three feet; two feet in high visibility areas.	X	X	
29	Utilize slash when operationally, economically, and biologically feasible.	X	X	
30	Minimize the size and number of landings.	X	X	X

Continued on page 8

*See page 4 for definitions of sensitivity classifications

		Sensitivity Classification*		
	Persons are using Generally Accepted Forest Management Practices for <u>Visual Quality</u> if they…	**Most Sensitive***	**Moderately Sensitive***	**Least Sensitive***
31	Retain snags and coarse woody debris to meet wildlife habitat purposes.	X	X	X
32	Minimize stump height; most should be less than 12 inches high.	X	X	X
33	Grade roads and trails upon sale completion and as necessary during operations.	X	X	
34	Remove all high and split stumps (stump snipes and barber chairs).	X	X	
35	Do not fell trees or leave debris across property lines.	X	X	X
36	Immediately clean up all hazardous material spills, and report if necessary	X	X	x
37	Remove all logging debris near recreational trails, at least once per day.	X	X	
38	Keep a snow pack on winter recreational trails and do not plow to bare soil. Avoid creating snow piles across recreational trails	X	X	
39	Avoid using recreational trails for hauling, skidding, and decking.	X	X	
40	Complete logging operations as quickly as possible.	X	X	

*See page 4 for definitions of sensitivity classifications

NOISE, DUST AND SMOKE
GENERALLY ACCEPTED FOREST MANAGEMENT PRACTICES

The GAFMPs in this section cover not only noise as stated in the Right to Forest Act but also dust and smoke. All three of these items can occur during forestry operations. Similar to the Visual Quality section, the GAFMPs for Noise, Dust and Smoke have been organized under the following three sensitivity classifications:

Most Sensitive[3]: Applies to travel routes and areas where significant public use occurs and where the visual quality is of high concern to typical users. Examples of such routes may include public highways, local roads, recreational lakes and rivers, and designated recreational trails, areas that provide a high level of scenic quality, and residential and commercial areas.

Moderately Sensitive[3]**:** Applies to travel routes or recreation areas, not included in Level 1, where visual quality is of moderate concern to typical users. Examples of these routes and areas may include public highways and local roads, recreational lakes and rivers, and designated recreational trails that provide moderate to high scenic quality but less significant public use.

Least Sensitive[3]: Applies to travel routes or recreation areas, not included in Levels 1 or 2, where visual quality is of less concern to typical users. Examples of these routes may include public highways and low-volume local forest roads, non-designated trails, non-recreational lakes and rivers and agricultural or resource management areas.

Tables 2, 3 & 4 detail Noise, Dust, and Smoke GAFMPs, respectively, using the sensitivity classifications described above.

[3] Minnesota Department of Natural Resources, (2006). Visual Sensitivity Classifications. Retrieved July 14, 2006, from Minnesota Department of Natural Resources Web site: http://www.dnr.state.mn.us/forestry/visual_sensitivity/index.html

Table 2: Generally Accepted Forest Management Practices for Noise

		Sensitivity Classification*		
	Persons are using Generally Accepted Forest Management Practices for Noise if…	**Most Sensitive***	**Moderately Sensitive***	**Least Sensitive***
1	Activities are scheduled at a time of the year and day as to not disrupt community activities.	X	X	x
2	Activities are scheduled from 6 a.m. to 6 p.m.	X		
3	Engine brakes on trucks are not used near residences or businesses.	X	X	
4	Noise emissions from equipment meet manufacturer specifications.	X	X	
5	Timber removal practices conducted as part of a development project (land use conversion to non-forest) adhere to the same noise control regulations which apply to other development activities, as specified in the project contracts (e.g. hours, day of week, etc.).	X		
6	An informal notice of intent is provided to adjacent landowners.	X		
7	Forestry practices are completed as quickly as possible to minimize duration of activity.	X		
8	Location and operation of equipment is designed to minimize noise levels at nearby residences.	X		
9	Mechanical (aerial/large equipment) chemical application is completed in accordance with all guidelines and rules established by the Michigan Department of Agriculture.	X	X	X
10	Fire suppression aircraft is used, when determined by the Incident Commander.	X	X	X

*See page 9 for definitions of sensitivity classifications

Table 3: Generally Accepted Forest Management Practices for Dust

		Sensitivity Classification*		
	Persons are using Generally Accepted Forest Management Practices for <u>Dust</u> if…	**Most Sensitive***	**Moderately Sensitive***	**Least Sensitive***
1	Public roads are treated for dust abatement as needed.	X	X	X
2	On non-public roads, dust control measures and reduced travel speeds are used to minimize dust, as needed.	X	X	X
3	Activities are scheduled at times of day or year that will minimize dust problems and minimize conflicts with special community events in the area.	X	X	
4	On sites prone to wind or water erosion, soils are stabilized as soon as possible after activities are completed.	X		

*See page 9 for definitions of sensitivity classifications

Table 4: Generally Accepted Forest Management Practices for Smoke

		Sensitivity Classification*		
	Persons are using Generally Accepted Forest Management Practices for <u>Smoke</u> if…	**Most Sensitive***	**Moderately Sensitive***	**Least Sensitive***
1	Formal notification of a burn has been given to immediate neighbors and appropriate township/city officials	X		
2	Formal notification of a burn has been given to the Michigan DNR, local law enforcement, fire department, and other local agencies so they may be able to respond to public inquiries.	X	X	X
3	Michigan DNR burn permit has been obtained (not required when ground is snow covered).	X	X	X
4	There is the presence of a qualified burn boss.	X	X	X
5	A qualified burn plan is implemented, taking into consideration wind speed, humidity, fuel loads, air quality risk, visibility risk, smoke drift, temperatures, and other burn plan considerations.	X	X	X
6	Implementation of burn only occurs when traffic volumes are low for the area (auto, air, boat, etc.).	X	X	X
7	An on-site inventory of adequate fire suppression equipment and personnel is conducted, per burn plan.	X	X	X
8	Informal notification of a burn is provided to immediate neighbors and appropriate township or city officials		X	X

*See page 9 for definitions of sensitivity classifications

REMOVAL OF VEGETATION OR TIMBER
GENERALLY ACCEPTED FORESTRY MANAGEMENT PRACTICES

Michigan is home to a variety of forest types due to differences in climate and soil types throughout the state (see Appendix A for list of Michigan forest types). Each of these forest types requires different strategies and techniques for management. Table 5 provides common regeneration methods, alternative management techniques and other practices for forest types in Michigan. The practices listed are the most commonly used practices for each forest type, but by no means encompass all acceptable silvicultural management practices. Management practices may vary, depending upon the individual forest stand, site considerations, management plan, and landowner objectives. A silvicultural system often includes various thinnings and other practices, considered intermediate and stand-improvement treatments and not “regeneration” harvests. The methods listed under “regeneration harvest method” are those harvests designed to regenerate the stand.

A note to this section, the act of cutting trees should not in itself be considered a nuisance.

Table 5: Generally Accepted Forest Management Practices for Removal of Vegetation or Timber

A person is considered following Generally Accepted Forest Management Practices for <u>Removal of Vegetation/Timber</u> if they follow these or other silviculturally appropriate techniques for removal of vegetation or timber*.			
Forest Type	**Common Regeneration Harvest Method**	**Alternatives**	**Other Practices**
Northern Hardwoods	Selection (uneven- aged management), single tree or group	Clearcutting, Shelterwood	Non-commercial thins, crop tree, removal of overtopping trees
Aspen	Clearcutting		Prescribed burning
Oak-Hickory	Shelterwood	Group Selection, Shelterwood	Removal of at least 40% of canopy to facilitate regeneration. Natural regeneration or hand/machine planting may be used.
"Mixed" Hardwoods	Shelterwood	Selection, Clearcutting	Crop tree
Elm/Ash/Soft Maples (Swamp Hardwoods)	Selection, Clearcutting	Shelterwood, Seed-tree	This forest type is typically associated with wetlands; therefore, management activities need to account for maintaining wetland functions and values.
N. White Cedar	Selection, Clearcutting	Shelterwood, Seed-tree	Bough cutting. This forest type is typically associated with wetlands; therefore, management activities need to account for maintaining wetland functions and values.
Red Pine	Shelterwood	Clearcutting	Mechanical/chemical preparation of site. Thinning pruning, Christmas trees.
Jack Pine	Clearcutting, Seed tree or Shelterwood		Thinning, mechanical opening
Balsam Fir	Clearcutting	Shelterwood	Pruning, bough cutting, Xmas trees
Black Spruce	Clearcutting	Shelterwood	This forest type is typically associated with wetlands; therefore, management activities need to account for maintaining wetland functions and values
Paper Birch	Shelterwood	Clearcutting	
White Pine	Shelterwood	Clearcutting	Thinning, crop tree, bough cutting, pruning, Christmas trees, seed scarification.
Tamarack	Clearcutting	Shelterwood	
White Spruce	Clearcutting	Shelterwood	Bough cutting, Xmas trees

*Management practices may vary, depending upon the individual forest stand, site considerations, management plan, and landowner objectives.

USE OF CHEMICALS
GENERALLY ACCEPTED FOREST MANAGEMENT PRACTICES

Forest landowners and managers in Michigan grow useful forest products simultaneously providing improved wildlife habitats, maintaining productive soils, protecting lakes, streams and wetlands, conserving biological diversity and other ecological resources of Michigan. While the use of chemicals to control unwanted weeds, disease or insects pests is a well established forestry practice the vast majority of forest lands are not regularly treated with pesticides. However, when chemicals are needed, it is helpful to describe basic practices for their use to help landowners and foresters make safe and effective use of these products. These practices are intended to meet that need.

Forest landowners and managers who comply with relevant state and federal chemical/pesticide laws, Michigan State University (MSU) pesticide recommendation bulletins, pertinent sections of the Michigan Department of Agriculture's Generally Accepted Agricultural and Management Practices for Chemicals (GAAMPs) and follow the practices of this document will meet provisions of Public Act 676 of 2002, as amended, The Right to Forest Act. Failure to comply with applicable state and federal laws and regulations that govern the use of chemicals could subject the forest manager or landowner to prosecution under those laws whether or not there is a nuisance complaint or civil action involved.

PESTICIDE UTILIZATION AND PEST CONTROL PRACTICES

Michigan Department of Agriculture's GAAMPs provide detailed direction regarding the following topics related to the use of pesticides in Michigan. Although the GAAMPs are specifically developed for agricultural chemical use they should also be followed where applicable for the control of pests and use of chemicals in forestry applications.

Table 6 provides Generally Accepted Forest Management Practices for the Use of Chemicals to control forest pests and plants in Michigan. Appendix B provides elements of a drift management plan and Appendix C provides a reference of state and federal laws regarding chemical use.

Table 6: Generally Accepted Forest Management Practices for the Use of Chemicals

	A person is considered following the Generally Accepted Forest Management Practices for the <u>Use of Chemicals</u> if…
1	They are complying with all relevant state and federal laws and regulations (See Appendix 2), including the Pesticide Use Regulation 637.
2.	They have immediate access to a spill kit for any person who mixes, loads or otherwise uses pesticides/chemicals. The spill kit should contain materials appropriate to the material being applied and equipment being used. The spill kit requirement does not apply to a person who uses single containers of use dilution pesticides in a quantity less than 16 ounces.
3.	They are applying pesticides (chemicals) in a manner that minimizes off target drift.
4.	A Drift Management Plan is utilized when off-target drift is anticipated due to the nature of the application. Utilization of the plan will minimize occurrence and adverse effects of off-target drift. (See Appendix B)
5.	Pest populations are assessed and pesticides are applied only when needed to manage pests during the vulnerable or appropriate stage of their life cycle
6.	Pesticide (chemical) application does not occur beyond the boundaries of the target site.
7.	Pesticide applications that result in the exposure of person(s) within or adjacent to the target site do not occur, except when such pesticide has approved use for treatment of populated areas for specific pest management programs (ex: gypsy moth, mosquitoes)
8.	Pesticide applications that do not cause contamination of aquifers (P.A. 451 of 1994 as amended, Part 87 and Part 31, Rule 2203) or run-off to surface waters are avoided.
9.	They are aware of and adhere to any pesticide use directions or references on pesticide labels concerning state management plans. These plans are specifically designed for the protection of ground water.
10.	Pesticide (chemical) label instructions are followed and pesticides (chemicals) are applied at or less than legal labeled rates.

APPENDIX A

MICHIGAN FOREST COVER TYPES

Forest Type	Acres
Jack pine	709,965
Red pine	1,221,475
Eastern white pine	427,393
Balsam fir	396,411
White spruce	145,077
Black spruce	468,691
Tamarack	202,458
Northern white-cedar	1,368,020
Eastern red cedar	12,106
Other softwoods	136,693
Oak	1,858,849
Northern hardwoods	6,384,785
Lowland hardwoods	1,319,045
Cottonwood / Willow	118,687
Aspen	2,574,935
Birch	409,656
Balsam poplar	259,866
Non stocked	156,084
Other	1,141,750
Total	**19,311,946**

Source: USDA Forest Service
Forest Inventory & Analysis Data 2004

APPENDIX B

ELEMENTS OF A DRIFT MANAGEMENT PLAN

The Drift Management Plan shall include drift minimization practices. Such practices may include, but are not limited to, any of the following:

a) The use of the largest spray droplets that are created by a combination of special nozzles, pressures, and particulating agents to accomplish the objectives of the applications.

b) The use of specialized equipment that is designed to minimize off-target drift.

c) The use of the closest possible spray release to the target.

d) The use of the lowest effective rates of application of the pesticide.

e) The establishment of a no-spray buffer zone. The buffer zone may be treated with non-powered equipment.

f) The identification of the maximum wind speed and direction under which applications can be made.

g) The use of wind shields or windbreaks to contain spray drift or deflect spray drift away from sensitive areas.

h) Other specific measures stated in the plan that are effective in minimizing the incidence of off-target drift.

APPENDIX C

REFERENCES ON STATE AND FEDERAL LAWS AND REGULATIONS

State and Federal Laws and Regulations: A person applying pesticides in Michigan must comply with all relevant state and federal laws and regulations. These include, but are not limited to:

1. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1947 as amended. This is the basic federal law regulating pesticide registration and use in the United States. A new part of this law requires states to implement a state management plan for specific pesticides that may contaminate groundwater. Pesticide applicators are required to adhere to state components of this plan.

2. Federal Worker Protection Standard of 1992. This regulation was written by EPA governing the protection of employees on farms, forests, nurseries, and greenhouses from occupational exposures to agricultural pesticides. They are intended to reduce the risk of pesticide poisoning and injuries among agricultural workers and pesticide handlers through appropriate exposure reduction measures. The regulations expand the requirements for insuring warnings about pesticide applications, use of personal protective equipment, and restriction on entry to treated areas. New requirements are added for decontamination, emergency assistance, maintaining contact with handlers of highly toxic pesticides, and pesticide safety training.

3. Federal Record Keeping. Authorized by the 1990 Federal Food, Agriculture, Conservation and Trade Act (Farm Bill), new requirements are being developed for record keeping of federally restricted use pesticides (RUP) by certified applicators.

4. The Superfund Amendments and Reauthorization Act (SARA) of 1986 Title III: Emergency Planning and Community Right-to-Know. This Federal law provides mechanisms to prepare for chemical emergencies. Persons storing pesticides that are considered to be extremely hazardous by EPA above "Threshold Planning Quantities", must notify the State Emergency Response Commission within MDEQ, the Local Emergency Planning Committee and the local fire chief that they store at least one of these chemicals above threshold at some time. The location of the storage facility and name and telephone number of a responsible person must be reported also. If there is a spill or release of one of these chemicals above the "Reportable Quantity", the same organizations must be notified. MSU Extension Bulletin E-2575 contains information to help farmers comply with the law.

5. The Endangered Species Act (ESA) of 1973 as amended. This Federal law protects endangered species and their habitats from the adverse effects of

pesticides. Pesticide labels will contain information on endangered species and restricted use areas.

6. National Fire Prevention Association Code 395. The Michigan State Fire Marshall has adopted the NFPA Code 395 which regulates the storage of combustible and flammable liquid chemicals with a flash point below 200^{o} F. If you construct a new chemical storage facility, contact your local building inspector to be sure you are in compliance with the fire code's construction, dyking and location requirements. The code sets requirements for the amount and location of stored chemicals; the type, construction and size of containers; and fire prevention devices which need to be incorporated into structures.

7. Public Act 451, The Natural Resources and Environmental Protection Act of 1994 as amended.

   A. Part 31 Water Resources Protection (formerly Public Act 245, The Michigan Water Resources Commission Act of 1929 as amended). This part provides broad substantive bases for protection and conservation of surface and groundwater resources of the state.

   B. Part 55 Air Pollution Control (formerly Public Act 348 of 1965 as amended, Air Pollution Control). The Michigan Department of Environmental Quality has statutory authority, powers, duties, functions and responsibilities for rule making and issuance of permits and orders for air pollution control, including burning of pesticide containers. The part provides for control of air pollution which may be in the form of a dust, fumes, gas, mist, odor, smoke, or vapor, in quantities which are or can become injurious to human health or welfare, animal life, plant life or to property, or which interfere with the enjoyment of life or property.

   C. Part 83 Pesticide Control (formerly Public Act 171, Michigan Pesticide Control Act of 1976 as amended) of Public Act 451, The Natural Resources and Environmental Protection Act of 1994. This part regulates registration, distribution, labeling, storage, disposal and application of pesticides in Michigan. The act was amended in 1993 to allow MDA to respond to incidents of confirmed groundwater contamination.

   D. Regulation No. 636, Pesticide Applicators and Regulation No. 637, Pesticide Use were established as a requirement of Part 83 Pesticide Control of Public Act 451, The Natural Resources and Environmental Protection Act of 1994, to provide regulation for pesticide use.

   E. Part 87 Groundwater and Freshwater Protection (formerly Michigan Groundwater and Freshwater Protection Act, Public Act 247 of 1993). This part establishes the necessary legal authorities to develop and implement voluntary, proactive management practices for pesticides and fertilizers that are protective of groundwater. The act provides for technical assistance, grants, and

research and demonstration projects that will be available to agricultural producers in order that they can change current practices that may be impacting groundwater. The act also establishes a statewide advisory committee and regional groundwater stewardship teams that will work directly with producers.

F. Part 111 Hazardous Waste Management (formerly Public Act 64, The Hazardous Waste Management Act of 1979 as amended). This part protects public health and the natural resources of the state from harmful effects of hazardous wastes. When pesticides are not used according to label directions, are out of condition, or are suspended or canceled, they may become hazardous wastes and have strict transportation, treatment, storage and disposal requirements. This also includes pesticide containers that are not triple rinsed or power washed.

G. Part 115 Solid Waste Management (formerly Public Act 641, The Michigan Solid Waste Management Act of 1978 as amended). This part provides for proper design and licensing of non-hazardous landfills, and provides disposal requirements for various types of wastes. It lists over 60 approved licensed landfills that can accept properly rinsed pesticide containers. MDEQ Waste Management Division phone number is (517) 373-2730.

H. Part 201 Environmental Response (formerly Public Act 307, The Environmental Response Act of 1982 as amended). This part provides for the identification, risk assessment and priority evaluation of environmental contamination and provides for response activity at certain facilities and sites. This Act also provides an exemption from liability for farmers if they follow the pesticide label and Generally Accepted Agricultural and Management Practices. Any spills or discharges of polluting material (including pesticides) that may potentially reach any surface or ground water must be controlled and reported to the Michigan Department of Agriculture Pollution Emergency Hot Line (1-800-405-0101) or the Michigan Department of Environmental Quality, Pollution Emergency Alerting System (PEAS) at 1-800-292-4706.

8. Public Act 154, The Michigan Occupational Safety and Health Act (MIOSHA) of 1974 as amended. The Michigan Department of Public Health and Michigan Department of Labor jointly enforce this law to protect workers who handle or during normal working conditions might be exposed to pesticides. Employers are required to develop and implement a written employee training program as well as insure that all pesticides or other hazardous chemical containers are properly labeled. For hazardous chemicals other than pesticides, the employer is required to have Material Safety Data Sheets available for employee review. In case of pesticide, labeling information may be furnished if Material Safety Data Sheets are unavailable. Copies of Material Safety Data Sheets for pesticides are normally available from pesticide manufacturers or distributors. Additionally,

farmers are advised to cooperate with their local fire department and local emergency planning committees in furnishing requested information.

9. Public Act 399, The State of Michigan Safe Drinking Water Act of 1976 as amended. An act to protect the public health; to provide for supervision and control over public water supplies; to provide for the classification of public water supplies; and to provide for continuous, adequate operation of privately owned, public water supplies. This act sets forth standard isolation distances from any existing or potential sources of contamination and regulates the location of public water supplies with respect to major sources of contamination.

10. Public Act 346, The Commercial Drivers' License Law of 1988. This act requires farmers to obtain a hazardous material endorsement on their commercial drivers' licenses when transporting pesticides requiring placarding on vehicles exceeding 26,001 pounds GVWR.

11. Public Act 368, the Michigan Public Health Code of 1978 as amended. An act to protect and promote the public health; to codify, revise, consolidate, classify, and add to the laws relating to public health; to provide for the prevention and control of diseases and disabilities; and to provide for the classification, administration, regulation, financing, and maintenance of personal, environmental, and other health services and activities.

APPENDIX D

FOREST MANAGEMENT ADVISORY COMMITTEE MEMBERS

Steven Arwood, *Arwood Group*

Joel Blohm, *Great Northern Lumber of Michigan*

William Bobier, *Earthscape Resource Management*

Lynne Boyd, *Michigan Department of Natural Resources*

William Cook, *Michigan State University Extension*

Leland Crawford, *International Paper*

Thomas Dunn, *American Motorcycle Association*

Margaret Gale, *Michigan Technological University*

Susan Holben, *Michigan Economic Development Corporation*

Mark Janke, *Consulting Forester*

Desmond Jones, *Michigan Tree Farm System*

Daniel Keathley, *Michigan State University*

William Manson, *Michigan Snowmobile Association*

Frank Ruswick, *Michigan Department of Environmental Quality*

Warren Suchovsky, *Suchovsky Logging*

Sam Washington, *Michigan United Conservation Clubs*

Gordon Wenk, *Michigan Department of Agriculture*

Anne Woiwode, *Sierra Club Mackinac Chapter*

Committee Advisor

Leanne Marten, *USDA Forest Service*

GLOSSARY OF TERMS

American Tree Farm System: A national third-party certification system for private forest landowners practicing sound sustainable forestry.

Barber Chair: A large spike, several feet high, left on the stump, split from a fallen tree

Borrow Pit[4]: The area from which soil is removed to build up the roadbed, sometimes directly adjacent and parallel to the road.

Canopy[5]: The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.

Clearcutting method[6]: An even-aged management technique that removes the entire stand in one cutting with reproduction obtained artificially, by natural seeding from adjacent stands or trees cut in the clearing operation or vegetatively (sprouting).

Even-aged Management[4]: A system of forest management in which stands are produced or maintained with relatively minor differences in age.

Forest[7]: As used in the Right to Forest Act, a tract of land that is at least 10% stocked by trees of any size, whether commercial or noncommercial species, or formerly having tree cover and not currently developed for non-forest use, including woodlands, woodlots, windbreaks and shelter belts.

Forest Management Plan: A written guidelines for current and future forest management practices designed to meet landowner objectives.

Forestry Operation[7]: As used in the Right to Forest Act, activities related to the harvesting, reforestation and other management activities, including, but not limited to, thinning, pest control, fertilization, and wildlife management, that are consistent with principles of sustainable forestry.

Forest Stewardship Council: An international third-party forest certification program that emphasizes social values and focuses on minimizing the negative impacts of forestry practices.

Forest Stewardship Plan: A written document listing activities that enhance or improve forest resources (wildlife, timber, soil, water, recreation, and aesthetics) on private land over a 5-year period

Grubbed Stumps: stumps which have been tipped over during road building or landing development.

Jack-Strawed Trees: trees snapped off due to logging activities, usually laying in a criss-cross pattern.

Seed-tree method[6] An even-aged management technique that removes the old stand in one cutting, except for a small number of seed trees left singly or in small groups

Selection method[6]: Removal of the mature timber, usually the oldest or largest trees, either as single scattered individuals or in small groups at relatively short intervals, repeated indefinitely, by means of which the continuous establishment of reproduction is encouraged and an uneven-aged stand is maintained.

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[4] Minnesota Forest Resources Council. *Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers and Resource Managers.* 2005. Minnesota Forest Resources Council, St. Paul, Minnesota.,
[5] Lake States-Central Hardwoods Working Group of the Forest Stewardship Council-U.S.
[6] Smith, D (1986). *The Pracitce of Silviculture*. New York: John Wiley & Sons Inc.
[7] Right to Forest Act, Act 676 of 2002, Legislative Council, State of Michigan

Shelterwood method[6]: Removal of the old stand in a series of cuttings, which extend over a relatively short portion of the rotation, by means of which the establishment of essentially even-aged reproduction under the partial shelter of seed trees is encouraged.

Silviculture[5]: The art of producing and tending a forest by manipulating its establishment, composition and growth to best fulfill the objectives of the owner. This may, or may not, include timber production.

Sustainable Forestry[7]: As used in the Right to Forest Act, forestry practices that are designed to meet present and future wood product needs by employing a land stewardship ethic that integrates the reforestation, managing, growing, nurturing, and harvesting of trees for useful products with the conservation of soil, air, and water quality, wildlife and fish habitat and visual changes.

Sustainable Forestry Initiative: *A national third party forest certification program that focuses on applied forest management and on maintaining a high standard of forestry performance.*

Stump snipes: A splinter or small narrow spike, usually less than two feet long, left on the stump, split from a fallen tree.

Timber[7]: As used in the Right to Forest Act, live or dead trees, including, but not limited to, bark, foliage, wood and firewood.

[5]Lake States-Central Hardwoods Working Group of the Forest Stewardship Council-U.S.
[6] Smith, D (1986). *The Practice of Silviculture*. New York: John Wiley & Sons Inc.
[7] Right to Forest Act, Act 676 of 2002, Legislative Council, State of Michigan