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Appendix 4 – Hazardous Spills & Pesticides / Herbicides

Part 1 – Hazardous Spills

Two laws require that spills of hazardous materials be reported and cleaned up to prevent the material from entering a water course or water body. They are the Federal Clean Water Act and the New Jersey Toxic Catastrophe Prevention Act. Regulations from both laws are interpreted for practical guidance in the field. "The New Jersey Forestry and Wetlands State Best Management Practices", often called the BMP manual, was written to provide logging contractors and other resource managers with a field handbook that would be used to assure compliance with the Clean Water Act. It addresses the construction of roads and skid trails, soil erosion control measures, and the handling of hazardous waste. In addition, the New Jersey Department of Environmental Protection has developed publications addressing hazardous waste spills including "Technical Requirements for Site Remediation" These publications are available via the web at http://www.nj.gov/dep/srp/ber/

The guidelines provided in these publications can be divided into two areas of concern: preventative measures, and procedures to be taken when a spill has occurred. Specific details can be found in the BMP manual. When a spill actually happens it must be reported immediately by state law and to remain within compliance with FSC standards.
Reporting a spill must be done and is the first step in the legal compliance process. A small spill does not need to be reported if it meets criteria set forth my NJ DEP's Site Remediation Program.

All reportable petroleum spills and most hazardous materials spills must be reported to the Department of Environmental Protection hotline (609-292-1250). For spills not deemed reportable, it is strongly recommended that the facts concerning the incident be documented by the spiller and that a record be maintained for at least one year. It is recommended that the forest operator assemble and maintain a spill containment and cleanup kit appropriate for the equipment to be maintained and used. At a minimum, kits should contain: plugs and clamps to control hydraulic line breaks; a container to catch leaking fluids; and a shovel and absorbent material such as sawdust or clay granules to clean leaked fluids.

Part 2 – Pesticide / Herbicide Application

The FSC Criteria, for the application of chemical herbicide include three core elements:

a) The identification and avoidance of 'highly hazardous' pesticides;
b) Promotion of 'non-chemical' methods of pest management as an element of an integrated pest management strategy; and,
c) Appropriate use of the pesticides that are used.

To date, FSC policy has focused primarily on the first of these elements: the avoidance of 'highly hazardous' pesticides. This guidance document follows this precedent, since it is this element that has attracted most comment. The remaining elements are introduced briefly in Sections 5 and 6 of this paper but are not covered in detail. FSC recognizes that further guidance needs to be developed focusing on the remaining elements.

Identification, avoidance and control of 'highly hazardous' pesticides

The FSC pesticides policy recognizes the distinction between hazard and risk. Hazard refers to the inherent danger in a situation. Risk recognizes that the inherent danger may be limited by specific controls. The overall risk may be reduced both by identifying and avoiding hazard, and also by taking steps to control hazards which have been identified.

FSC policy follows this two-step approach. The chemical properties of pesticides are generally hazardous, but some are more hazardous than others. FSC Criterion 6.6 lists aspects of hazard that FSC considers (e.g. persistence, toxicity, etc). FSC has then specified technical indicators by which each identified element of hazard may be objectively evaluated (e.g. LD50 value as an indicator of toxicity) and specified a threshold above which a particular pesticide is considered 'highly hazardous' and below which it is considered 'less hazardous' (e.g. . LD50 < 200 mg/kg for mammals is 'highly hazardous', LD50 > 200 mg/kg for mammals is 'less hazardous').

Annex I of this guidance document specifies the complete set of indicators and thresholds used for the identification of 'highly hazardous' pesticides. **Annex II** lists the active ingredients which exceed these thresholds and which are therefore identified by FSC as being 'highly hazardous'.

The listing of a pesticide as 'highly hazardous' does not mean that the pesticide cannot be used under any circumstances. Nor does the fact that a pesticide is not on this list mean that it is 'safe'. Inclusion on the list means that FSC considers the pesticide as 'highly hazardous' in relation to one or more of the specified indicators. In order to reduce the risk of negative environmental or social impacts these pesticides shall be avoided, and should only be used in FSC-certified forests and plantations if there is no viable alternative.

In summary the FSC approach to the use of 'highly hazardous' pesticides is as follows:

STEP ONE	**STEP TWO**	
IF Is a pesticide 'highly hazardous' for one or more of the elements specified? (i.e. is it included on the *FSC list of 'highly hazardous' pesticides?).*	YES:	Do not use the pesticide, OR, if there is no viable alternative, request a temporary derogation, following the requirements established in *FSC-PRO-01-004 Procedure for processing temporary derogations to the FSC Pesticides Policy*. If derogation is approved, the pesticide may be used under the conditions specified in your derogation. Other FSC and national requirements (e.g. safe use, training of operatives) continue to apply.
	IF NO:	The pesticide may be used without a specific derogation, so long as the other FSC requirements (e.g. consideration of alternatives, safe use, training, disposal, etc.) are met, *AND* the pesticide is used in accordance with national legislation and regulations for its use.

Table 1. Overview of FSC's approach to the use of pesticides.

This two-step description is a simple illustration of FSC's overall approach in relation to one aspect of pesticide use, based on evaluation of hazard. It is NOT intended to act as a full decision support framework for the use of pesticides and should not be used as such.

The following sections specify the indicators and thresholds that have been used by FSC to identify 'highly hazardous' pesticides and aspects related to temporary derogation applications for the use of these pesticides in FSC certified forests and plantations.

Indicators and thresholds for 'highly hazardous' pesticides

Criterion 6.6 of the FSC Principles and Criteria identifies the general properties of pesticides that should be evaluated in the determination of hazard. These properties are:

- Persistence
- Toxicity (chronic or acute toxicity to non-target organisms)
- Biological activity and accumulation in the food chain

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In order to evaluate these properties effectively FSC considers the following aspects:

- Carcinogenicity
- Mutagenicity
- Endocrine disruption

- Presence of heavy metals
- Presence of dioxins (including dioxins in the by-products of burning)

In addition, FSC Criterion 6.6 identifies as 'highly hazardous' pesticides which are, or include:

- Chlorinated hydrocarbons
- Chemicals identified by the World Health Organization (WHO) as either "Extremely Hazardous" (Class 1A) or "Highly Hazardous" (Class 1B)
- Pesticides which are banned by international agreement.

The FSC Pesticides Policy and associated documents specify objective indicators and thresholds for the identification of particularly hazardous pesticides in relation to each of these aspects. The basis for selection of these indicators and thresholds was discussed in detail in the paper *Use of Chemical Pesticides in Certified Forests: clarification of FSC criteria 6.6, 6.7 and 10.7* (Radosevich, S., M.Lappé & B.Addlestone (2000) FSC-USA). This work was reviewed in detail in *Review of the Forest Stewardship Council's Pesticide Indicators and Thresholds* (2005) by PAN-UK, followed by another in 2007: *Review of the Forest Stewardship Indicators and Thresholds for identifying 'highly hazardous pesticides'* by a panel of experts.

Review and revision of indicators and thresholds

Whilst the indicators and thresholds for identifying potentially hazardous pesticides are benchmarked by the best science available, the ultimate choice of indicators and thresholds to identify pesticides considered as "highly hazardous" is a socially determined decision in the FSC system. Thus, based on the available scientific information about use of pesticides and their associated impacts, the FSC system sets a bar above which certain pesticides are considered unacceptable for use in FSC certified forests. However use of such pesticides may be allowed under specific circumstances where there is evidence of no current viable alternative to the pesticide in question but subject to fulfilling the derogation requirements as outlined on *FSC-PRO-01-004 Procedure for processing temporary derogations to the FSC Pesticides Policy*.

In the case of the FSC system the choices of indicators and thresholds were first specified in 2002 after consideration of existing norms used by organizations such as the WHO and US Environmental Protection Agency (EPA) followed by extensive consultation with social, environmental and economic stakeholders.