Guideline for the Management of Waste Solvents

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1 Introduction

This guideline provides general information on proper management of waste solvents. Waste solvents are a contaminant under the *Environmental Protection Act* (EPA) of the NWT and must be managed as a hazardous waste.

Solvents can dissolve other substances (solute) and form a uniformly dispersed mixture (solution). The major uses include paint and coatings (paints, varnishes, and lacquers), industrial cleaners, printing inks, extractive processes and pharmaceuticals. Solvents are generally produced from petroleum or alcohol feedstock. Many solvents are flammable and toxic; substances that can contribute to fire hazards and the contamination of air and water.

This guideline is specific to the management of waste solvents and should be read in conjunction with the Guideline for the General Management of Hazardous Waste in the NWT (referred to as the General Guideline). Section 2.2 of the EPA gives the Minister of Resources, Wildlife and Economic Development the authority to develop, coordinate and administer these guidelines.

1.1 Definitions

Flash Point	The lowest temperature at which a flammable liquid produces a sufficient amount of vapor to ignite with a spark.
Fumes	Vapors of organic liquids.
Generator	The owner or person in charge, management or control of a hazardous waste at the time it is generated, or a facility that generates hazardous waste.
Solvent	Alcohol or petroleum based liquids capable of dissolving another substance (solute) to form a uniformly dispersed mixture (solution) at the molecular level.
Transport authority	The regulations controlling the management of hazardous waste under that mode of transport. These include: Road and rail - *Transportation of Dangerous Goods Act* (TDGA) *and Regulations* (TDGR) Air - *International Civil Aviation Organization Technical Instructions* (ICAO) Marine - *International Maritime Dangerous Goods Code* (IMDG).

Vapor An air dispersion of molecules of a substance that is liquid or solid in its normal state (at standard temperature and pressure).

Vapor pressure The pressure characteristic at any given temperature of a vapor in equilibrium with its liquid or solid form. (Usually expressed in millimeters of mercury, mm Hg)

1.2 Characteristics

Solvents are flammable and toxic chemical liquids. Most solvents are derived from petroleum or alcohol based feedstock. Some are more flammable than others because of differences in vapor pressure. Solvents are toxic by ingestion, skin contact, and vapor inhalation. Solvent vapors can also deprive the lungs of oxygen.

Solvent vapors, if they originate from flammable solvents, can explode. If the vapor is present in air at concentrations higher than the lower explosive limit (LEL) and lower than the upper explosive limit (UEL), there is the potential for an explosion if a spark or static charge is present. Depending on the type of solvent the vapour may be explosive in air at concentrations as low as one percent.

1.3 Potential Effects

Numerous human health disorders are attributed to solvent exposures. Long term or chronic exposure to specific types of solvents can damage vital organs and affect the human immune system.

Improperly managed solvents can harm or kill plants, wildlife and aquatic life. Water contaminated by solvents can adversely affect a community water supply system and the health of the community.

Chlorinated solvents bioaccumulate and are difficult to destroy. Chlorinated solvents are commonly found in cleaning and degreasing operations and the refrigeration industry. Over-use and improper management of chlorinated solvents has resulted in damage to the global ozone layer. Waste solvents require responsible management.

2 Roles and Responsibilities

2.1 Environmental Protection Service

The Environmental Protection Service (EPS) of the Department of Resources, Wildlife and Economic Development is the Government of the Northwest Territories' (GNWT) agency responsible for initiatives which control the discharge of contaminants and their impact on the environment. EPS is responsible for ensuring that environmentally acceptable management procedures, emission levels and disposal methods are maintained. EPS programs are applied primarily to Commissioner's Land, lands administered by municipal governments or GNWT undertakings. Legislative authority is provided by the EPA and *Pesticide Act*. Contact EPS for a listing of relevant regulations and guidelines.

2.2 Generators

The responsibility for proper waste management rests with the generator and should be considered as part of the cost of doing business.

Any person who generates waste solvents is responsible for the proper management of these substances. Waste solvents must be safely handled, packaged, stored, transported, treated and/or disposed in accordance with this guideline.

3 Waste Management

Minimizing or avoiding the creation of pollutants and wastes can be more effective in protecting the environment than treating them, or cleaning them up after they have been created.

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3.1 Pollution Prevention

Pollution prevention methods reduce or eliminate the generation of waste. Pollution control procedures treat waste after it has been generated. Pollution prevention strategies for solvents include the following:

Reduce

? Develop inventory control methods and ensure quantities of materials are completely utilized.
? Substitute less hazardous chemicals.

Reuse

? Participate in national, provincial or territorial waste exchange programs.
? Establish exchange accounts with approved solvent recyclers.
? Develop small scale recycling options (ie: filtering, decanting, solvent distillation).

Recycling

? Make an agreement with your supplier/distributor of solvent to return the waste solvent.

3.2 Storage

Storage is not a long term solution.

Store waste solvents according to the following:

? In the original containers, where possible, or in containers manufactured for this purpose of storing hazardous waste. Use containers that are sound, sealable and not damaged.
? Bulk into good quality 16 gauge or lower steel or plastic drums.
? The containers should be sealed or closed at all times.
? Label containers according to the requirements of the Work Site Hazardous Materials Information System (WHMIS) of the *Safety Act* or the relevant Transport Authority if transport to a disposal location is planned. (see Section 3.3 Transportation).
? Protect containers from the weather and physical damage.
? Storage should be in a secure area with controlled access.
? Train personnel in the safe use, storage and shipping procedures for solvents. Only trained persons should have access to the storage area.

Wastes should be stored to prevent spills from entering sewer systems or the environment. Waste solvents should **NEVER** be stored in used food containers such as bottles or cans.

The storage of waste solvents is only acceptable as an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycler or disposal facility.

Storage of waste solvents in quantities greater than 1000 litres, for a period greater than 180 days requires registration as a hazardous waste storage facility. Consult the General Guideline or contact EPS for application procedures.

3.3 Transportation

Waste solvents transported to a recycling, treatment, storage or disposal facility must be properly classified, packaged, labeled and manifested as required by the transport authority (air, road, rail, marine). Specific requirements for waste generators are detailed in the General Guideline.

For road transportation purposes, waste solvents can be classified in the following ways, depending on the type of solvent.

Shipping Name: **Waste Naphtha, Petroleum**
Classification: 3
P.I.N.: UN1256
Packaging Group: I, II, III

Shipping Name: **Waste Flammable Liquids, N.O.S.**
Classification: 3
P.I.N.: UN1993
Packaging Group: I, II, III

Chlorinated, brominated and other halogenated solvents require shipping names specific to the solvent. Consultation with the transport authority is recommended.

Generator numbers, waste manifests and registered hazardous waste carrier lists are available from the Environmental Protection Service.

3.4 Disposal

Compatible solvents should be bulked for transportation and shipped to a registered recycling or disposal facility. Contacts for recycling or disposal companies are available by contacting the waste management associations listed in Appendix II of the General Guideline.

Consideration will be given to proposals for alternate management methods that provide a level of environmental protection equivalent to complying with this guideline. EPS may approve the method, subject to conditions.

4 Conclusion

This guideline presents a brief introduction into the management of waste solvent. It is intended as a source of basic information and should be read in conjunction with the Guideline for the General Management of Hazardous Waste in the Northwest Territories. Please contact the appropriate agency before proceeding.

For more information contact:

1) Environmental Protection Service
Department of Resources, Wildlife and Economic Development
600, 5102-50 Avenue
Yellowknife NT X1A 3S8
Phone: (867) 873-7654 Fax: (867) 873-0221

2) Motor Vehicles
Department of Transportation
76 Capital Drive, Suite 201
Hay River NT X0E 1G2
Phone: (867) 874-5000 Fax: (867) 874-6088

3) Prevention Services Division
Workers' Compensation Board
Box 8888
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